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MEDICAL SERVICES

STATISTICS

Edited by

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GENERAL PREFACE

The present is the fifth of a series of volumes dealing with the medical aspect of the activities of the Indian armed forces in the Second World War. Lieut.-Colonel B. L. Raina, AMC, Medical Services, is the editor of this series and it is under his close guidance and supervision that the present work, like others of the series, was completed by the Medical Sub-Section of the Combined Inter-Services Historical Section.

The Historical Section was set up in 1946 with the object of recording the part played by the armed forces of pre-partition India in the various theatres of the Second World War. The fact that even after the partition the two Dominions of India and Pakistan decided on maintaining the Historical Section as a joint organisation is responsible for making it possible to bring the task to completion.

Though the subject-matter of this volume tends to be, or indeed is, of a technical nature, the need for reconciling the requirements of the specialist with those of the general reader has been constantly kept in view. The main purpose of this volume is to describe and analyse the morbidity and mortality suffered by Indian, British and African troops during the six momentous years of the Second World War in Asia. It is hoped that the volume will provide a useful work of reference, perhaps the only one on the subject so far in India.

I am thankful to Lieut.-General S. P. Bhatia, Director General Armed Forces Medical Services, for writing the foreword to this volume. I must also express my sense of gratitude and appreciation to Lieut.-Colonel B. L. Raina and Shri Jagdish Prasad for the manner in which they have accomplished a difficult task.

Bisheshwar Prasad

FOREWORD

Unlike its antecedent volumes of the official history of the Medical Services in the Second World War, this volume presents statistical data on morbidity relative to the ground forces of undivided India (now India and Pakistan). It is indeed gratifying that a task of such magnitude and complex character has been brought to completion.

Changed climatic conditions and endemic diseases foreign to Indian troops were encountered in the different theatres of the War. The inevitable sickness and battle and accidental casualties among the Allied troops differed from region to region. The relative rates of morbidity and mortality among the different categories of troops as well as their causes are analysed in this book, which also notices the results of the measures adopted to reduce their incidence.

In historical research there is, of course, no finality, and any new material unearthed may affect present conclusions. But the basis of statistical data lends considerable stability, if not immutability, to conclusions. Therefore, it is justifiable, and even necessary, for posterity's sake, to record statistics of health conditions in different regions and in different seasons as they were encountered under the stress of war, and thus help in bringing out the outstanding lessons of war in this sphere.

Such a collection and classification of numbers, though making dull and heavy reading, is none the less the only trustworthy guide for analytical studies and in planning future operations.

The chapters of this volume have, as usual, passed the searching scrutiny of the critics fitted by specialised knowledge and personal experience to give an opinion on the subject discussed. Their valued advice has been most useful, more so because of the intricate nature of the task. Among those whom I specially owe a deep debt of gratitude for such help and guidance are Professor F.A.E. Crew, F.R.S. and Major H. G. Mayne. It gives me pleasure also to express my appreciation of Lieut.-Colonel B. L. Raina, A.M.C., for his unsparing work in editing this volume.



(S. P. BHATIA)
Lieutenant-General

PREFACE

The plan and scope of the volumes of medical history of the war and persons connected with them have been indicated in the Preface of the first volume, on 'Administration'. It was hoped to give statistical account in this volume in detail of varied aspect of medical organisation and health of troops. It would have also been interesting to study the differences in morbidity amongst different ethnic groups in some detail. But the data is not readily available regarding the age composition of the troops, the differences due to differential location, the differences in the criteria for the enlistment of troops and the differences due to basic diet, acquired immunity or other environmental factors. With a view to ensure the maximum possible representativeness, the comparison of morbidity and mortality experiences were made between the BORs for the British troops and the VCOs and IORs for the Indian troops. All that was possible was to study the ranking of the diseases according to their incidence among these two groups. This volume deals mainly with the morbidity and mortality history of Indian troops under the South East Asia Command, on the Indo-Burma Front, Ceylon, India, Persia, Iraq and the Middle East Command, in Aden, Scotra, Scychelles, Sudan, Eritrea, Egypt, Syria, Palestine and Cyprus. For making the figures given in this volume more meaningful the readers may refer to other volumes of medical history especially those dealing with *Preventive Medicine, Medicine, Surgery and Pathology, Campaign in Eastern Theatre and Campaign in Western Theatre*.

The following observations may help in appreciating the significance of the figures presented in this volume.

During the Second World War the medical services in India functioned under difficult circumstances. The problems of finding personnel and equipment remained serious throughout the period of hostilities. In the early years of the war, most of the trained personnel and reserve medical supplies were allocated to the Middle East, Iraq and Persia. Japanese victories in the South East Asia and the ultimate withdrawal of the Indian and British troops along with about 5,00,000 civilians from Burma in 1942, created a grave situation. The annual sickness rate on the Indo-Burma front in 1943 rose to 1,196.10 per 1,000. Hospitals were taxed to the utmost capacity, as the accommodation available was about one-sixth of the casualties received. The medical services were thus strained almost to a breaking point.

Subsequent fighting on the Indo-Burma front was carried out in a terrain notorious for ill-health and infectious diseases. It contained some of the highly malarious regions of the world with annual rainfall as high as 200 inches. The situation demanded careful planning and strenuous efforts. A number of specialist units and hospitals were raised. By 1945, 1,163 medical units including 374 specialist units, had been raised, hospital beds were increased from 13,321 to 1,97,539

and 9,393 medical officers, 4,104 nurses and 1,52,469 other ranks were serving in the medical services.

Malaria, dysentery, diarrhoea, venereal diseases, minor septic diseases, common cold and skin diseases stand out prominently as the principal causes of morbidity. During 1943 and 1944, injuries due to enemy action also increased. The above mentioned diseases accounted for 70 per cent. of all admissions in 1942, 66 per cent. in 1943, 59 per cent. in 1944 and about 48 per cent. in 1945. The most important single cause of morbidity was malaria (418 per 1,000 in 1942, 479 in 1943 and in 1945).

It may be recalled that malaria had played an important part in deciding the fate of military campaigns from very early times. The Walcherian expedition of 1809, the First Burma Campaign (1924-26), and incidence of the disease in Macedonia, Egypt, East Africa and Mesopotamia in World War I, are well-known examples. During World War II, history once more repeated itself in Burma, the South West Pacific, the Middle East, North Africa, Sicily, Italy and in East and West Africa.

On the Indo-Burma front during 1943 and 1944 morbidity figures revealed that statistically every soldier was more than once hospitalised. For every ten persons sick from all causes about three to five suffered from malaria alone. It is estimated that the daily average of malaria cases in 1943 and 1944 was 5,560 and 3,606 respectively. In three months, October to December, 1942, 18,000 cases were evacuated from the Eastern Army. These figures, however, do not reflect the very high regional morbidity in certain formations.

The anti-malaria organisation which was evolved during the war must be considered against this background. It had to cope with a huge and complex problem, and was accordingly comprehensive in its scope. Anti-malaria units, malaria forward treatment units and research units were raised and large malaria control projects started. All the troops east of the line Gauhati (inclusive), Shillong (exclusive) and Chittagong (inclusive) were given suppressive mepacrine. New insecticides, repellents and other personnel protective measures and suppressive mepacrine considerably reduced the wastage of manpower due to malaria. Thus, in 1945, malaria incidence could be reduced to one-tenth of what it was in 1943, and the daily malaria sick rate dropped from 0.95 per 1,000 men per day in March, 1943 to 0.20 in March, 1945. According to the report, *The Utilization of Hospitals and Manpower*, by the Operational Research Group India, in 1945, on an average 8.5 days were required for the treatment of a case of malaria as compared to 40.6 during the Dardanelles Campaign in 1915. In the Middle East Force in 1943 this figure was 24.4 (including stay in convalescent depots) and in 1944 it was 20.6. Next to malaria, diarrhoea and dysentery were the most common ailments. The highest incidence of dysentery in Indian troops in Burma and SEAC (excluding Ceylon), Ceylon, Sudan and Eritrea, Persia and Iraq and Egypt, Western Desert and North Africa respectively was 49.42 (1942), 24.64 (1944), 24.86 (1942), 29.50 (1941) and 28.77 (1942) per 1,000.

The concentration of troops in Assam and the campaign in Kabaw Valley and other mite-infested regions brought into prominence the

menace of scrub typhus. Between July, 1943 and October, 1944, nearly 3,000 cases were evacuated from the Burma front with a mortality of about 10 per cent. In the impending campaigns troops in larger numbers were to be employed and they were unduly scared by the risk due to ignorance about the role of mites in the spread of scrub typhus. In view of all these considerations, research organisations were set up to study the problem. The GHQ Field Typhus Research Team, Medical Research Council (MRC) Typhus Team, the U.S.A. Typhus Commission and others investigated the problem.

The incidence of infective hepatitis in India and Burma did not assume the same proportions as in the Middle East. The features of the disease, however, were identical with those observed there. Its incidence was low among the Indian troops. This might be due to the fact that the Indian troops had acquired an immunity in early life. Mortality among the Indian troops was higher than the British due to their lower protein intake and poor nutritional reserve.

The post-arsenical jaundice, common both among the Indian and British troops, was found to be due to the transmission of the causative agent through the syringes used for injections. It appeared to be of greater severity than true infective hepatitis, showed longer duration and greater liability to haemorrhages and was associated with the higher mortality.

The war time food supply position created serious problem. They were accentuated by recruitment of men of low nutritional status. The latter problem was more marked, for not long after the declaration of the war, it was impossible to depend on the old sources of supply of men with characteristically fine physique. Men with inferior physical and nutritional status had to be recruited. To make them battle-worthy and raise their stamina and resistance to disease called for a thorough nutritional reconditioning, which considerably taxed the ingenuity of the medical services. The general food situation made the problem more complicated.

With the information available, the total energy value and vitamin content of military rations could be worked out to a reasonable degree of accuracy, and it was thus possible to determine whether or not a particular scale of rations was conducive to maintenance and promotion of health.

Scurvy practically did not affect the fighting men. The proper planning of military rations and the liberal use of vitamin preparations were to a great extent responsible for this phenomenon. The Japanese success in South East Asia cut away the food supplies coming from Indo-China, Thailand and Burma. The shortage of shipping aggravated the problem of supply to the forces fighting in Burma, which lay at the end of a long and difficult line of communication. Problems also arose with the new developments in strategy. Jungle warfare, long range patrolling commandos and paratroops made new demands, for the troops had to be away for considerable lengths of time from their bases and had to be maintained on rations which, besides being palatable, would provide adequate nutrition. The consideration of bulk and weight was important in such rations, and in the absence of a well-developed food-

processing industry in India such reliance had to be placed on imported commodities. In the Assam-Burma regions, where the troops were necessarily exposed to diseases such as malaria, dysentery and ankylostomiasis, malnutrition appeared amongst the Indian troops and required evacuation of considerable number from forward areas. A large proportion of the sick suffered from multiple vitamin deficiencies, especially of the B vitamins. Attempts to cure them with simple purified vitamins were generally unsuccessful. These cases responded to improvement in rations, mainly fresh protective food and proteins of higher biological value. The British troops under similar conditions reacted differently; they recovered more quickly and completely than their Indian compeers, and this led to the belief that the unfavourable response of the Indian troops to the conditions met with the Burma campaign was in some way connected with the difference in the rations of the two classes. The poor haemopoietic reserve and poor animal protein intake appear to have been mainly responsible for the breakdown of health of Indian troops. Over 1,000 British cases were also invalided for sprue and about three times as many suffered from the disease during 1943-45.

The outstanding characteristics of the Indian ration was its deficiency in animal protein and vitamin content, which led to an emphasis on the supply of meat to Indian troops. Owing to dietary habits of troops, main emphasis was given to fresh meat, but there were many difficulties in providing it. Although dehydrated meat was prepared in India for the use of Indian troops, yet it could not even touch the fringe of the problem. Quite early during the war the necessity was recognised of building up the nutritional reserves of the troops and their replenishment when depleted during the course of the campaign. Special feeding for such purposes and also for malnourished recruits was provided by the supply of appropriate rations.

The morale and efficiency of the troops depend to a considerable extent not only on a scientifically planned dietary but on the manner of its preparation and presentation. Recognition of this led to improvements in catering in the Army and ultimately to the establishment of the Army in India Catering Corps.

In order to lessen the strain on the food supply of the country, the Army found it necessary to develop certain substitutes, from both indigenous and outside sources. By means of frequent inspections and analysis of food-stuffs, the supply of wholesome food to the troops was ensured. All this introduced an unprecedented increase in the volume of work.

Strenuous efforts were made by the Directorate General of Industry and Supply and the Department of Food, to meet the demands of the Armed Forces. Not only were dehydrated vegetables, fruits, meat and meat products manufactured but also products like cheese, fruits and vegetables were tinned, jams and marmalade, refined salt, white pepper, bacon, oatmeal, raisin and nut blocks, amla sweets, lemonade powder, pearl barley, yeast and yeast concentrates, egg powder, golden syrup, vitaminized margarine, hard boiled sweets, sugar cubes and such other products were also produced.

In Assam and Burma, a malnutrition anaemia syndrome appeared in some cases and these responded to the improvements in rations, mainly

fresh protective food and proteins of high biological value. A triad of symptoms, diarrhoea, anaemia and loss of weight, was the outstanding features of some of them. The loss of weight was so great in a large number of such cases that they were reduced to a bag of bones. These cases were labelled as marasmus syndrome. Recovery was slow and most of them required more than four months of treatment in a hospital. Vitamins, iron liver-extracts, yeast, high protein diet and transfusion (whole blood and red cell concentrates) were all advocated as cures. Anaemia treatment centres were opened to treat and study such cases in the Central Command and the Southern Army in 1943. A marasmus investigating team was raised in 1945 to work in No. 145 IBGH(IT). The marasmus syndrome was limited to the Indian troops only. The British troops, on the other hand, suffered from sprue or sprue-like syndromes.

The loss of water and salts caused by hot humid climate led to a number of cases of heat effects and dehydration.

Minor septic diseases ranked fourth amongst the sick casualties on this front, prickly heat, septic abrasions, insect bites and fungus infections of the groin and foot accounted for most of the skin diseases.

Such wide prevalence of skin diseases was greater than what was anticipated. The great increase in dermatological work was not attributable to campaigning in unhealthy terrain—a similar increase occurred in Europe in World War I. Most cases of inflammation of areolar tissue admitted to surgical wards began with some lesion of the skin that was not skilfully treated in the early stage. Infection of the skin was the usual sequel to some defect in skin hygiene, the prevalence of scabies being outstanding. Prickly heat caused serious complaints mainly because the lesions usually turned septic after scratching.

The venereal diseases were acquired mostly in the base areas or during leave. The introduction of sulpha drugs and later of penicillin considerably reduced the number of 'Man days' lost due to gonococcal infection.

Amongst the neurological diseases, meningitis, acute poliomyelitis, epilepsy, peripheral neuritis, late effects of head injuries, neurological complications of malaria, heat stroke and neuropathies observed in the prisoners of war (POW) were of special interest.

Psychiatric disorders presented a major medical problem and it is estimated that from 10 to 15 percent. of all casualties showed psychiatric symptoms. Arrangements for special treatment had to be made for these casualties. In the forward areas, under the divisional psychiatrists, patients received early treatment; and about 25 percent. of these were returned to duty. On the lines of communication and in the base areas the number of beds reserved for the care and treatment of psychiatric patients varied between 3,000 and 4,000. Where possible, out-patient clinics were set up. Accommodation was a serious problem. Specially designed 25-bed wards (capable of expansion) were built as part of many general hospitals in all areas. In addition, there were several bigger centres in Comilla, Calcutta, Ranchi, Moradabad, Poona, Secunderabad and finally, a 1,000 bed hospital at Jalalahi 'Hospital town'.

The types of illness showed certain points of interest. Psychiatric symptoms were common as an accompaniment of malaria and, now and then, of typhus. Amongst the Indian troops conversion symptoms were more frequent than among the British soldiers in whom anxiety states were generally more prominent. Schizoid episodes were often found, and with adequate treatment responded well. The medical regulations laid down that patients with psychotic symptoms must be boarded out from the army. Experience with this short-lived type of schizophrenia, however, was such that the old policy had to be changed. The training of the Indian mental nursing orderlies MNOs, a new departure served a valuable purpose during the war. It was anticipated that these MNOs would be welcomed in the civil mental hospitals after the war; and this in fact did occur.

The sickness rate per 1,000 of psychiatric patients on the Indo-Burma front was 1.41 in 1942, 3.10 in 1943, 4.28 in 1944 and 5.33 in 1945. The rise in incidence was due to the altered conditions in which fighting took place. Exhaustion, malaria, dysentery, etc., were generally found in association with psychiatric disabilities. It was rare to find a patient with a clear-cut clinical picture. The absolute morbidity rates for psychosis, psychoneurosis and not yet diagnosed (NYD) mental diseases during 1945 were 0.86, 1.20 and 3.26 respectively on this front. It often happened—more often than not that the diagnosis was revised when the patient reached the hospital. Not all the patients were seen in the first instance by a psychiatrist—this was not possible—and so strange terms were often affixed. One 'label' found happily as a rarity, was 'NYD Lunatic'.

Besides the diseases and disorders mentioned above, reference may be made to arsenical encephalopathy, brucellosis, hill diarrhoea, ancylostomiasis, leishmaniasis, leprosy, solmonella enteridis as cause of enteric fever, tuberculosis, pulmonary eosinophilosis and cholera, on account of some features of special interest. Plague, relapsing fever, yellow fever, filariasis, dengue and sandfly fever did not present any military problem.

Of the various individual causes of invalidment, tuberculosis occupied a high position. Its rate was never less than 10 per 10,000 and shot up to as high as 17.38 per 10,000 in 1943. It was observed in 1945, that the relaxation of the standards of medical examination of recruits allowed enrolment of many individuals suffering from diseases and defects which often, after a comparatively short period of service, proved to be a cause of invalidment. A large number of recruits were invalided with less than four months service from such diseases as advanced pulmonary tuberculosis, partial blindness, deafness and deformities of limbs. The invalidments due to tuberculosis, mental diseases, respiratory diseases, diseases of bones, joints and muscles, nervous diseases and ear and nose diseases stood out prominently in each year. VCOs and IORs were invalided at an increasing rate, from 33.61 in 1939 to 181.84 per 10,000 in 1944. This rate fell slightly to 165.33 per 10,000 in 1945. Till 1943 injuries in action caused invalidments at a rate lower than one per 10,000 but after 1943, their rates were 1.50 in 1944 and 0.04 in 1945.

The daily average number of constantly sick in Burma and SEAC, Ceylon, Sudan and Eritrea, Egypt, Western Desert and North Africa, Persia and Iraq Force were 28, 4, 14, 6 and 26 per 1,000 respectively.

Considering the years with highest figures it may be inferred that on an average about 12,488 beds in the hospitals were occupied daily by VCOs and IORs in Burma and SEAC (excluding Ceylon) in 1943. In other words, 47 soldiers out of every 1,000 were in the hospitals throughout the year. The highest rate of beds occupied daily in Ceylon was 5.5 per 1,000 in 1944, in Sudan and Eritrea 22 per 1,000 in 1941, in Egypt, Western Desert and North Africa 8.2 per 1,000 during 1945 and in Persia and Iraq 30.6 per 1,000 during 1942. These rates are for active operational years on various fronts.

This volume brings out variations in the morbidity year to year and front to front according also to ethnic groups, categories, sex and diseases. The Indo-Burma front was peculiarly unhealthy. As stated earlier malaria, dysentery, diarrhoea, typhus fever and diphtheria were some of the important diseases in this front. The total sickness rate was specially high in 1944 due to the dysentery epidemic of June-July, 1944. For VCOs and IORs, the diseases above accounted for 82 to 95 per cent. of all casualties during the years 1942-45. Tonsillitis and dengue were more prevalent among the Women Auxiliary Corps (India) and the Indian Military Nursing Service than among the male Indian troops. The West African Other Ranks had lesser rates of malaria, diarrhoea and skin diseases than the Indian troops. While the morbidity in general decreased by 1945 for all troops, the East African Other Ranks recorded increased rates in 1945 for skin diseases and digestive diseases other than diarrhoea. The British troops suffered comparatively more from dengue than other troops. Dengue and tonsillitis were specially prevalent among the British Other Ranks. The mortality in the Indo-Burma front was in no case as high as one per cent. except for the British Other Ranks (BORs) in 1944 which was 1.08 per cent. The highest mortality due to war wounds was 0.43 per cent. for the British Other Ranks in 1944.

The order of diseases according to the incidence in the Ceylon front are malaria, venereal diseases, dengue, diarrhoea and dysentery. Dengue was endemic in the coastal regions of Ceylon where frequent exercises were held. The most notable diseases of this terrain were dengue, followed by dysentery, diphtheria and typhus fever. All troops including the Indian suffered heavy sickness. For the Indian troops the order of diseases was malaria, venereal diseases, dysentery, diarrhoea and for the Ceylonese troops it was malaria, common cold, venereal diseases and diarrhoea and dengue; for the British troops malaria, skin diseases, dengue, venereal diseases and minor septic diseases. The incidence of venereal diseases, unlike malaria, increased whenever the troops were not engaged in the extensive jungle exercises. For British Other Ranks the venereal disease rate exceeded the malaria rate by 71 per cent. in 1945. The rate of venereal diseases for BORs was 11 times that of British Officer (BOs). The incidence of dengue among British Other Ranks was quite extraordinary compared to other troops in Ceylon. The Ceylonese suffered little due to perhaps their natural immunity. The Indians had high rates of dengue and the BORs had

the highest rates about three to five times the Indian rates. It was only for the BORs that the dengue was the third in order of magnitude of incidence. The order of diseases amongst East African Other Ranks (EAORs) was venereal diseases, dysentery, common cold, minor septic diseases, dengue, scabies and skin diseases.

The mortality from all causes increased from 1.7 per cent. in 1942 to 2.6 per cent. in 1944 for all troops. The British Troops on the whole suffered 25 per cent. higher morbidity than the Indian troops from all causes and about nine times in respect of war wounds. In comparison to the rates for Indian troops (a) the only major diseases from which the British troops suffered were E.N.T. diseases and eye diseases, (b) the Ceylonese had lower rates for venereal diseases and E.N.T. diseases but had always higher rates (28 to 59 times) for influenza and (c) the East Africans had lower rates for malaria, minor septic diseases and E.N.T. diseases but had higher rates for common cold and venereal diseases.

In India, the highest death rate was from infective and parasitic diseases which accounted for 21 to 49 per cent. of all deaths of hospital admission. The order of diseases groupwise according to the incidence were infective and parasitic, respiratory, digestive group and skin and other tissues and the single major diseases in each of these groups was malaria, common cold, diarrhoea and aerolar tissues respectively. In any year the benign tertian was the most common form of malaria. The incidence of tuberculosis during war was higher than in peace time and the venereal disease rate was about four times the peace time average rate in India. The Indian female troops had lower crude morbidity rates than the Indian male troops. The most striking differences were provided by almost negligible rates of hospital admissions due to venereal diseases and diarrhoea in case of female troops.

For the British Other Ranks (BORs) in India, the important causes of sickness were malaria, dysentery, diarrhoea, venereal diseases and skin diseases. The benign tertian and malignant tertian accounted to 80 to 96 per cent. of malaria cases. Malaria and dysentery, though had high incidence, were not found to be the major causes of death. The enteric group of fevers had the highest rate of mortality. The Indian and British Officers suffered very heavily from dysentery, diphtheria and enteric group of fevers whose overall incidence ranged from 500 to 920 per 1,000 per year. However, the death rate for the officers due to these diseases was low. About $\frac{1}{3}$ to $\frac{1}{2}$ of the deaths of those officers were due to accidents, poisoning and violence.

The diseases most peculiar to Persia and Iraq were diphtheria, sandfly fever, Oriental sore, tonsillitis and typhus. The overall morbidity rate for the Indian troops was 743 in 1941 which decreased to 357 in 1945. The most important diseases so far as Indian troops were concerned were malaria, minor septic diseases, dysentery, injuries due to non-enemy action and venereal diseases. In some months of the year sandfly fever was most common. Its rate of incidence among the troops was brought down considerably during 1941-45 by the use of sandfly nets and spraying. Similarly the heat effects which were high initially decreased subsequently. The BORs suffered higher overall morbidity than the IORs.

In Aden, the Indian troops suffered heavily from malaria, dysentery, minor septic diseases, venereal diseases and digestive diseases in that order. The morbidity rates for these diseases increased throughout the period. Compared to the morbidity for the Indian troops in India, their rates for tonsillitis, diarrhoea, scabies, venereal diseases, pharyngitis, tuberculosis eye diseases and dysentery were high in Aden. On the whole Aden was found to be an unhealthy locality for Indian troops. The average constantly sick rate per thousand was as high as 51 in 1942 and the death rate was the highest in 1944 nearly 4 per thousand.

In Sudan and Eritrea, the Indian troops has the highest rate of sickness from battle casualties (126 per 1,000 in 1941) followed by venereal diseases, dysentery, diarrhoea and scabies. The malaria was insignificant in the total morbidity. On the whole the health of the Indian troops seemed to have remained satisfactory during the time of war in Sudan and Eritrea. The British troops suffered more sickness than the Indian troops, their rates were higher for venereal diseases, minor septic diseases, scabies, dysentery, diarrhoea and eye diseases and less for battle casualties.

The health condition of Indian troops in Egypt was highly satisfactory. The average daily sick rate varies from 4 to 8 per 1,000. The diseases of high incidence were malaria, dysentery, diarrhoea, scabies and venereal diseases. The Indian troops had high rates of incidence of diphtheria, typhus fever, sandfly fever and tonsillitis which were especially peculiar to this front. The BORs suffered less from the eye diseases and battle casualties than the Indian troops.

The overall morbidity rate of Indian troops in the Middle East varied from 304 in 1945 to 592 in 1942 per 1,000. The average daily sick rate was 6 to 14 per 1,000 and the death rate was always less than 2 per 1,000 during the period 1942-45 (except in 1942 when it was 2.3 per 1,000).

The Indian troops seemed to be particularly prone to mumps, oriental sore, eye diseases, pharyngitis and pneumonia and the British troops showed comparatively high rates for all other diseases, especially for dengue, diphtheria, dysentery, enteric group of fevers, sandfly fever, tonsillitis and influenza. However, these diseases to which either the Indian or the British troops were especially prone, were not by themselves generally important in the total morbidity picture of these troops. In terms of absolute rates from all areas the British troops had higher rates throughout the period in all the fronts except in Egypt and also in Sudan and Eritrea in 1942. The rate of average constantly sick also remained throughout constantly higher for the British than the Indian troops except for some years in Egypt, Sudan and Eritrea. As regards the mortality picture, it varied from front to front and provided no definite contrast between these troops.

A study of morbidity and mortality figures of World War II, once again shows that many more men are disabled by sickness than by enemy action. The striking wastage of manpower by disease is illustrated by the high ratio of sickness to war wounds, especially on the Indo-Burma front. The average ratio of war wounds to sickness (taking into consideration

years of active operations only) was about 1:67. The ratio of mortality due to war wounds and that due to sickness in different theatres was on an average 1:18, the highest being 1:36 in Persia and Iraq Force during 1941. The case mortality amongst the war wounded (deaths amongst those admitted for war wounds) on the Burma front during 1942-45 varied from 4.0 to 4.7 per cent. The case mortality amongst the war wounded in Egypt, Western Desert and North Africa, Sudan and Eritrea and Persia and Iraq Force was 0.3 to 13.0 per cent., 0.9 to 8.3 per cent. and 1.6 per cent. respectively. It will be apparent that for every soldier wounded on the Indo-Burma front 204 were sick in 1942 and 142 in 1943. The results of preventive measures, especially against malaria, are reflected in the ratio of battle and non-battle casualties in 1944 and 1945 when the ratios came down to 1:22 and 1:13 respectively. The ratio of casualties due to enemy action and non-enemy action in Ceylon was high (in 1945 as high as 1:7, 264) for the obvious reason that it was not a theatre of active operations. The average ratio in Ceylon during 1943-45 was 1:2, 872. It is interesting to observe that in 1943 and 1944, on the Indo-Burma front statistically every soldier was more than once in hospital, admission rates being 1,196.10 and 1,040.91 per 1,000 respectively. The figures also reveal that in 1944 (the year of highest admission rate due to war wounds) in the Indo-Burma theatre of operation, out of each group of 1,000 soldiers about 48 were wounded, and of these 48 wounded less than three died of war wounds. In 1943 (the year of low war wound admission rate) about nine of every 1,000 soldiers were admitted with war wounds and of these less than one died of injuries due to enemy action. The relationship of casualties due to enemy and non-enemy action in Egypt, Western Desert and North Africa (except for 1945) varied from 1:11 to 1:42. During 1945, the ratio was 1:479. This relatively high rate of sickness as compared to war wounds during 1945, was due to the fact that operational activities had practically ceased. It may be added that the ratio would have been more or less like that of Ceylon, but due to decreased rate of general morbidity the figure of sickness was only 479 times of the war wounds. In Sudan and Eritrea, the ratio of war wounds to sickness was 1:68 in 1940, 1:3 in 1941 and 1:364 in 1942. The ratio of war wounds to sickness in Persia and Iraq Force was consistently high, 1:176 in 1941, 1:929 in 1942, 1:612 in 1943, 1:594 in 1944 and 1:446 in 1945. The average ratio of war wounds to sickness in Aden and Socatra was 1:1, 396 (the highest figure being 1:1, 769 in 1942). This was due to the area being a non-operational one like Ceylon. The sickness history of Indian troops overseas was better than in India as judged from the overall rate of diseases and casualty and the average number daily sick. This may perhaps be due to the fact that better medical category troops were sent overseas.

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ABBREVIATIONS

AD Book	..	Admission and Discharge Book
AD (Corps)	..	Army Dental (Corps)
ADMS	..	Assistant Director Medical Services
AF	..	Air Force
AG (Stats)	..	Adjutant General (Statistics)
ATS	...	Auxiliary Territorial Service
BOs	..	British Officers
BORs	..	British Other Ranks
BS	..	British Service
CORs	..	Ceylonese Other Ranks
DADMS	..	Deputy Assistant Director of Medical Services
DADP	..	Deputy Assistant Director of Pathology
DDH & P	..	Deputy Director of Hygiene and Pathology
DDMS	..	Deputy Director Medical Services
DDT	..	<i>Dichloro-diphenyl-trichloro-ethane</i>
DGAFMS	..	Director General Armed Forces Medical Services
DMR & F	..	Director Military Regulations and Forms
DMS	..	Director of Medical Services
EA	..	East African—Enemy Action
EAORs	..	East African Other Ranks
ENT	..	Ear, Nose and Throat
GOC-in-C	..	General Officer Commanding-in-Chief
IAF	..	Indian Air Force
IAMC	..	Indian Army Medical Corps
ICOs	..	Indian Commissioned Officers
IKCOs	..	Indian King's Commissioned Officers
IMD	..	Indian Medical Department
IMNS	..	Indian Military Nursing Service
IMS	..	Indian Medical Service
IOs	..	Indian Officers
IORs	..	Indian Other Ranks
IS	..	Indian Service
LC	..	Line of Communication
MAD	..	Medical Advisory Division
MNS(BS)	..	Military Nursing Service (British Service)
MO	..	Medical Officer
NCs(E)	..	Non-Combatants (Enrolled)

NEA	.. 'Non-Enemy Action
NYD	.. Not yet Diagnosed
OC	.. Officer Commanding
ORs	.. Other Ranks
PUO	.. <i>Pyrexia of unknown origin</i>
QAIMNS	.. Queen Alexander's Imperial Military Nursing Service
RAAF	.. Royal Auxiliary Air Force
RAF	.. Royal Air Force
RAMC	.. Royal Army Medical Corps
RIN	.. Royal Indian Navy
RM	.. Royal Marine
RN	.. Royal Navy
SEAC	.. South East Asia Command
TB	.. Tuberculosis
US	.. United States
USA	.. United States of America
VCOs	.. Viceroy's Commissioned Officers
VD	.. Venereal Disease
WA	.. West African
WAAF	.. West African Air Force
WAC(I)	.. Women's Auxiliary Corps (India)
WAORs	.. West African Other Ranks
WRNS	.. Women's Royal Naval Service

CHAPTER I

Introduction

This descriptive volume on the history of casualties suffered by the fighting forces during World War II has had to be prepared under full knowledge that the data presented are scanty. This limitation has necessarily confined the scope of the volume to an interpretation of the available data rather than a critical statistical analysis. It would have achieved its purpose better if the morbidity study of the soldier was possible with respect to his age, the type of unit (arm of service) in which he was serving, the exact regional location of the fighting front and the treatment given along with a history of the environmental conditions in which he was brought up before joining the forces. A source which could supply part of this information was the library of clinical records of each soldier maintained by the Medical Directorate, Army Headquarters at that time. On further scrutiny of these records, it was found that the purpose of the statistical volume would not be served, in the time available, even if a sample study of these records was made.

It has not been possible to analyse requirements of medical manpower under different situations for lack of appropriate source material.

Under the circumstances, the narrative in this volume has been confined to the readily available material from the C.I.S. Historical Section on the subject. It is hoped that this narrative will at least succeed in bringing to attention of the readers, including medical administrators, the magnitude of the problem which the medical authorities were required to face and which the fighting forces had to suffer from an almost round the clock falling down of soldiers from enemy action and of soldiers suffering from fell diseases, during 1939 to 1945. It is also hoped that in its own insignificant way, this volume would help to throw light on the fact that the war was fought most heroically by the Allies with a sense of general world comradeship and won creditably.

Diseases here have been classified according to the *International Classification of Diseases, Injuries and causes of Death* (WHO). Among the diseases classed as major septic diseases are included: erysipelas, gangrene, osteomyelitis, pyaemia and septicaemia. "Minor septic diseases", on the other hand, include—inflammation of lymphatic glands, suppuration of lymphatic glands, inflammation of lymphatic vessels, suppuration of lymphatic vessels, boils, carbuncles, ulcers, whitlows, inflammation of areolar tissue and onychia. Throughout the appended tables, admissions or rates based on them for specialist groups of diseases do not necessarily include all the admissions or rates based on them, as specialist groups of diseases do not necessarily include all the admissions in that specialist group. It does include admissions due to most of the important diseases which might be treated as equivalent to all admissions. For instance, the diseases shown under "infective

¹ "International Statistical Classification of Diseases, Injuries and Causes of Death"—1948 Ed. World Health Organisation.

and parasitic diseases" in the tables do not cover all the diseases that can possibly be included among them, but only such of them as may be given in proforma prescribed for the purpose. It is, however, possible that small figures for some less important disease or diseases of a specialist group have been lumped up in the residual category—"all other causes"—in this return. To that extent, specialist groups shown here are not all embracing.

Indices used here are Relative Morbidity Rate which shows the percentage of hospitalised cases (excluding transfers) with a given diagnosis among total hospitalised sick cases during a given period. Relative casualty rate is the percentage of hospitalised cases (excluding transfers) with a given specification among total hospitalised (disease and injury) cases during a given period. Comparative Morbidity Rate expresses the proportion which the absolute rate for a disease per 1,000 strength of a category of personnel during a period bears to the corresponding absolute rate for another category of personnel taken as 100. Comparative Casualty Rate expresses the proportion which absolute rate for a specialist group (or a group of diseases) per 1,000 strength of a category of personnel, bears to the corresponding absolute rate for another category of personnel taken as 100. Daily Average Number under Treatment from all causes is obtained by adding together the number under treatment each day (excluding detained cases) separately for (a) sickness and (b) war wounds and dividing each total by the number of days in the year to which the return refers.

At present no information is available about admissions in medical units other than hospitals, e.g. barracks, convalescent depots, malaria forward treatment units, etc. So far as hospital admissions and rates based on them, as put out here, are concerned, differences in them for various categories of personnel might be taken as a good approximation to the correct trend. It has not been possible to give a representative trend for differences in the relative duration of stay or number of days lost due to each disease, because the period spent by a patient in a convalescent depot carries out a marked percentage of his period of illness. So also should be the period taken by medical units other than hospitals in curing a soldier before either sending him back to the front or transferring him to a hospital.

It has not been possible to obtain a reliable breakdown of these figures by commands, which makes it difficult to study differentials between different localities on this broad front. This consideration is highly relevant to avoid attributing wrong susceptibility of a certain category of personnel to a disease when actually it may have been due to the fact that a comparatively higher proportion of that category of troops was stationed in a locality ridden by that disease. Figures presented in the ensuing tables and analysis based thereon, will, therefore, remain subject to this caution. Again the data show overall death rates with respect to sickness and war wounds annually, for various categories of troops. Comparisons of mortality experience will, therefore, be confined to these personnel categories on an annual basis only. In the absence of data relating to mortality by diseases it is not possible to assess

relative and comparative gravity of diseases with respect to their mortality.

Since age-incidence of different diseases is not possible to compute for lack of data, analyses here will remain shorn of useful comparisons between different categories of troops of a nationality and between troops of different nationalities, including their differentials. All that is possible with the present data is to compare crude relative rates, of each category of personnel over the period under consideration, of various personnel categories, year by year. Relative rate measures the proportionate contribution of a disease to total sickness from all diseases. Similarly, crude absolute rates will also be possible to analyse here. These rates indicate whether a particular disease actually led to more admissions among one or the other category. Comparative rates, which are calculated from absolute rates, go to compare actual loss to any force caused by a disease with the corresponding figure for a particular nationality of troops (caused in a particular area) by that disease. It will be seen that these comparisons can answer the following administrative questions:—

- (a) Causes of hospital admissions; and
- (b) The relative importance of one or the other of such causes among troops of different nationalities in an area, at a given period of time.

They cannot answer such questions as to how far the morbidity differences disclosed by these rates are due to innate biological differences among the types of personnel, or to their different age compositions, or to administrative procedures applicable to them, or to the differences in localities in which they happened to be placed. These are important considerations which will have to be deferred here for want of relevant information. As an instance it may be stated that the conclusion that a particular difference in morbidity rates from a disease among the VCOs and IORs and BORs at a particular time is due only to innate biological differences in their races can be drawn only if these rates have been standardised for (i) the differences in ages of the two groups (ii) the localities of their posting and (iii) lengths of service overseas, etc. It should be remembered that the resulting rates, after standardising or eliminating differences due to these factors, will only indicate that these differences are due to differences in the nationality of the two groups. They will not indicate what contributions respective diets, environments in which they have been brought up, or the immunity of the two groups make to the observed biological differences.

The scheme of discussion followed in each chapter, will as far as possible, be as follows:—

- (1) Introductory remarks;
- (2) Morbidity experience of each separate category of troops employed on a front;
- (3) Magnitude of sickness and casualties, indicating their daily spread during actual fighting days, wherever feasible;

- (4) Racial differences with respect to morbidity;
- (5) Mortality experience.

Detailed treatment of racial differences will be resorted to in the relevant chapters and only a summary of them will be referred to in the chapter on ethnic differentials. This procedure is being adopted for two reasons. Reliable distribution of strength figures by sub-regional areas of a front is not available, neither is the corresponding morbidity experience of troops according to such a sub-regional distribution available.

CHAPTER II

South East Asia Command; Indo-Burma Front-1942-45

Section I

INTRODUCTION

The source of information for this Chapter is the 'monthly army form A.F.A. 31-B (modified for India), consolidated at army/command level for transmission to DMS in India, who, in turn, carried out annual compilations for the whole force. Figures of average strength of various personnel categories are understood to have been arrived at by adding daily figures and dividing them by the number of days in a month, against which relevant rates have been worked out. Averaging at the headquarters for corresponding annual figures was similarly carried out over the 12 monthly totals. It has been considered preferable, therefore, to stick to the average annual strength figures extracted from A.F.A. 31-B rather than figures obtainable from the relevant publications of AG (Stats). The latter give quarterly strengths on four definite dates, one in each quarter, and not an average based on the whole period. It is due to this reason that some difference will be found to exist between the figures of strength utilised here and those of AG(Stats), for a particular period. As will be seen from the ensuing tables, figures of admissions from this return are available for some 44 diseases.

Period covered here extends from 1942 to the end of war in Burma (August-September 1945).

Data in the ensuing tables pertain to Indian, British, West African and East African troops.

Before proceeding with the analysis of figures in ensuing tables, it is necessary to appreciate special factors which affected the operations for the recapture of Burma. One of them was the terrain which was considered as "one of the most unhealthy in the world".¹ Malaria was endemic throughout the country below 3,000 feet. Kabaw Valley which, next to the Imphal plain, was the first field of operation, was "reputed to be one of the worst malarial valleys in the world".² Diseases like dysentery, diarrhoea, scrub typhus and skin diseases were widely prevalent in Burma. The "medical administrative problems"³ presented by them and the vast distances, interspersed with almost insurmountable natural barriers, over which active campaigning was required to be conducted, "probably surpassed"⁴ all other problems

¹ Report to the Combined Chiefs of Staff by the Supreme Allied Commander (Real Admiral The Viscount Mountbatten of Burma).

² Despatch by General Sir George J. Giffard, C-in-C 11th Army Group, SEAC.

³ Medical Administration—some difficulties and progress on the Eastern Front by Lieut.-General T. O. Thompson.

⁴ Medical Administration—some difficulties and progress on the Eastern Front by Lieut.-General T. O. Thompson.

on this front. Battles were fought at 5,000 feet and over, often in thick jungles, and fully equipped and loaded troops "struggled up" from nullahs 2,000 feet below in the face of heavy small-arms, mortar and grenade fire. Another important obstacle to operations was the monsoons in Burma. Increased incidence of malaria was noted twice during the year, once before the monsoons started and again after the monsoons had well set in, with a peak generally in July-August. These cyclical trends in the incidence of malaria can be seen in the Table on next page which includes figures of monthly admissions and rates per 1,000 during 1943, 1944 and 1945, for VCOs and IORs. The first rise in the curve relating to the period before the monsoons might be due to relapse cases whereas the second rise, in the latter half of every year, should be fresh infection cases. Monsoon rains, besides causing heavy sickness, turned tracks into leach-laden streams, *chaungs* into treacherous "torrents", and rivers into raging floods that washed away roads and created all sorts of difficulties on the ground. In the land along the coast, temperatures being high, they raised humidity to such an extent as to make campaigning thoroughly exhausting.

In the earlier part of the Burma War, acute difficulties in medical equipment, shortage of medical personnel of all types and of bed accommodation, lack of welfare arrangements for troops, inadequate leave and bad transportation, were some of the additional factors which the Command had to contend with. It is against this background that a proper appraisal of the magnitude of morbidity and of the steps taken successfully to combat it is to be made from year to year.

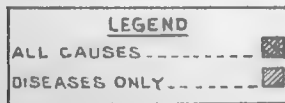
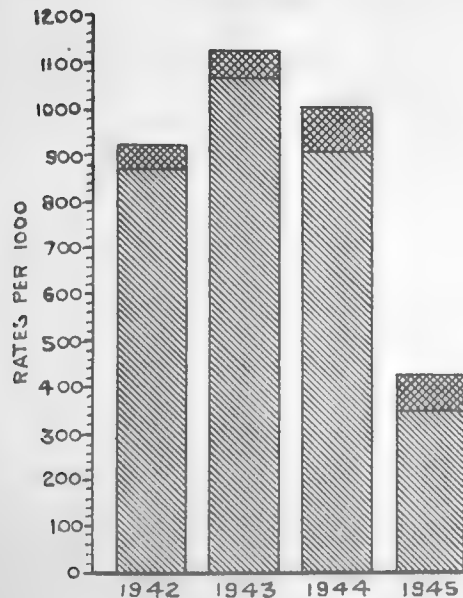
Due to manifold difficulties presented by high sickness rates in this area, the Supreme Allied Commander, South East Asia Command, was specially authorised by the British Prime Minister to form a high-level Medical Advisory Division (MAD) on his staff, composed of experts in tropical medicine and hygiene from each of the three Services and the U.S. Army. Four officers were accordingly selected.⁵ The directive of this Division was to advise the Supreme Commander on all medical matters; to keep constant watch on medical affairs throughout the Command and for this purpose to maintain a statistical section; to keep in constant touch with medical research, particularly tropical research in all allied countries; to advise on methods for the application of research to the particular problems of SEAC; and to act as general liaison with medical directorate and branches of the component parts of the SEAC. Succeeding paragraphs will bring forth the success achieved by medicine over disease on this front.

⁵ Royal Navy
Army

RAF
U.S. Armed Forces

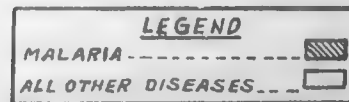
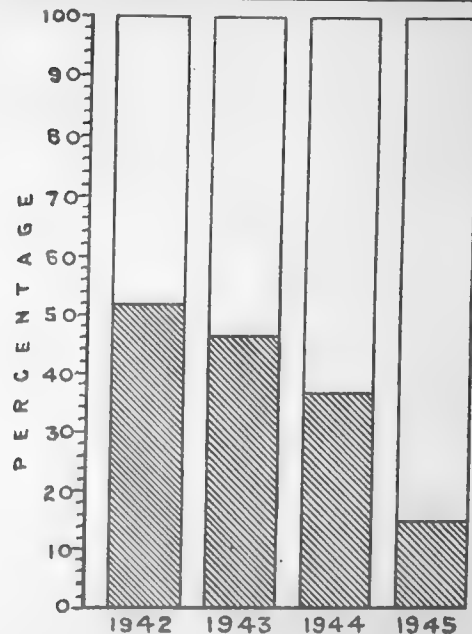
— Surgeon Captain C. H. Birt.
— Major-General T. O. Thompson, subsequently replaced by
Colonel Schariff.
— Group Captain J. Hill.
— Colonel E. Rice.

INDO-BURMA FRONT
BURMA & S.E.A.C. (EXCLUDING CEYLON)
ABSOLUTE RATES OF INCIDENCE DUE TO
DISEASES AND "ALL CAUSES" (V.C.O.s. & I.O.R.s.)
1942-1945



REFER PAGE 7

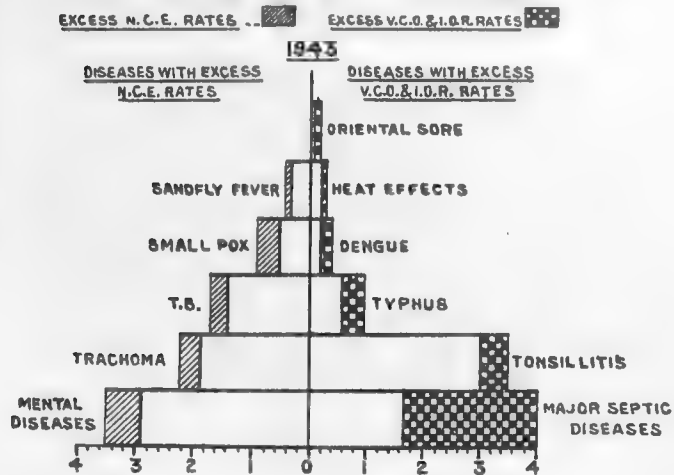
INDO-BURMA FRONT
FALLING RELATIVE RATE OF MALARIA
IN TOTAL SICKNESS (V.C.O.s. & I.O.R.s.) 1942-45



REFER PAGE 9

INDO-BURMA FRONT

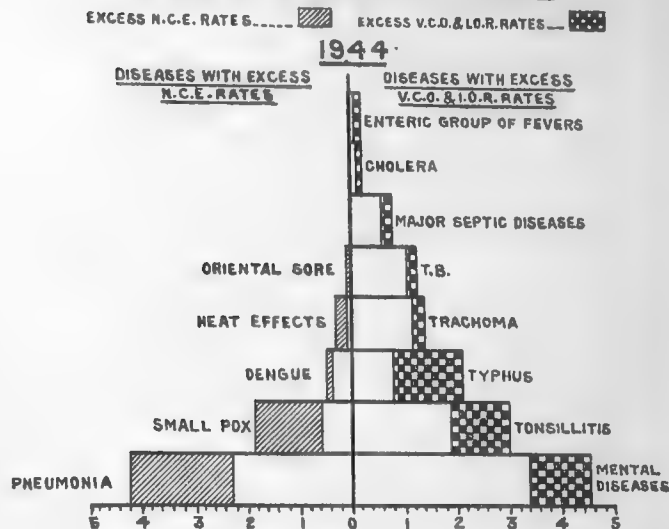
DIFFERENTIALS WITH RESPECT TO ABSOLUTE INCIDENCE OF SOME OF THE LESS IMPORTANT DISEASES



REFER PAGES 20 AND 30

INDO-BURMA FRONT

DIFFERENTIALS WITH RESPECT TO ABSOLUTE INCIDENCE OF SOME OF THE LESS IMPORTANT DISEASES



(SEE TABLE 1 AND 4)

Section II

VCOs AND IORs

The overall incidence per 1,000 strength, for VCOs and IORs, during 1942, 1943 and 1944 were 920.8, 1,128.9 and 1,004.3 respectively (Table 1). These are very high rates which signify, on an average, about one casualty due to all causes for every soldier, in 1942, and more than one casualty per soldier each in 1943 and 1944. During 1945, however, this rate was reduced to 426.17 per 1,000 which meant less than one casualty between two soldiers. As against them, incidence rates for the corresponding personnel in India are shown below:—

Total casualty rate per 1,000 for VCOs and IORs in India.

1942	746.5
1943	742.7
1944	732.9
1945	583.9

As for sickness due to diseases only, absolute rates indicate a trend towards a substantial increase from 1942 to 1943, a fall in 1944 and a precipitous decline in 1945. The rates were: 877.4 per 1,000 in 1942; 1073.4 in 1943; 911.7 in 1944 and 349.7 in 1945. The heavy fall in 1945 was presumably due largely to a corresponding fall in malaria rate that year. The drop in this rate in 1945 is also statistically significant indicating that such a difference could not have arisen due to chance. These rates indicate the huge share contributed by diseases to total casualties every year. Relevant percentages are given in Table 3 which shows that "diseases" accounted for 95 per cent. of "all casualties" in the years 1942 and 1943, and for 91 per cent. and 82 per cent. of all casualties during 1944 and 1945 respectively.

Available monthly figures of average daily number under treatment, from (i) sickness and (ii) war wounds, during 1943-45 are given in the table on the next page.

They at once indicate immensity of the task army medical authorities were required to face on this front. For instance, among only the VCOs and IORs, there were as many as 16,295 daily sick at its peak, in August 1943. That the authorities fought against it energetically and with success is also apparent from the corresponding figure in September 1945, which shows 279 admissions from diseases. The trend of average numbers daily sick from diseases follows closely that of the monthly malaria figures, referred to in Table which follows. The high figures in the months of April-May to October-November each year correspond, and might mainly be due to increased malaria incidence. Similar figures for war wounds show a particularly heavy concentration during February-March to July-August each year.

The trend registered by most of the diseases, with high incidence, in Burma, was as follows. An increase occurred in absolute incidence upto middle of 1944, whereafter a gradual decline set in, showing

STATISTICS

Average daily number under treatment	1943			1944			1945		
	Sickness	War Wounds	Total	Sickness	War Wounds	Total	Sickness	War Wounds	Total
January ..	8,222·03	35·27	8,257·30	10,664·14	163·08	10,827·22	442·71	20·84	463·55
February ..	7,754·59	186·28	7,940·87	9,038·53	369·30	9,407·83	483·57	62·79	546·36
March ..	7,617·63	337·99	7,955·62	9,332·84	1,060·75	10,393·59	462·26	61·97	524·23
April ..	10,628·42	468·16	11,096·58	5,875·46	1,347·45	7,222·91	613·77	63·53	677·30
May ..	14,198·75	218·56	14,417·31	13,393·74	1,277·70	14,671·44	417·09	79·87	496·96
June ..	15,468·54	71·44	15,539·98	14,839·0	1,883·0	16,722·0	498·90	15·30	514·20
July ..	15,976·05	62·24	16,038·29	16,008·3	1,520·3	17,528·6	434·45	23·74	458·19
August ..	16,294·51	113·33	16,407·84	15,179·7	490·4	15,670·1	363·87	5·71	369·58
September ..	14,218·84	9·45	14,228·29	13,285·9	218·9	13,504·8	279·00	2·10	281·00
October ..	16,263·62	8·08	16,271·70	13,237·9	172·4	13,410·3			
November ..	12,167·60	20·86	12,188·46	516·87	3·67	520·54			
December ..	10,672·83	70·10	10,742·93	485·22	3·42	488·64			
Average daily number under treatment during the year ..	12,356·19	131·72	12,487·92	10,015·69	669·48	10,715·17	439·08	36·89	475·97
Rate per 1,000 during the year ..	46·46	0·49	46·96	31·59	2·21	33·80	1·43	0·12	1·55

a dramatic fall in 1945. Exceptions were dysentery which during these years fell and rose alternatively with a sudden fall to one-third in 1945 of what it was in 1944; hepatitis which, curiously, showed an increase almost throughout; mumps, the rate for which fell by 2/3rds from 1942 to 1943 and showed an increasing rate thereafter; influenza, the rate for which fell through 1943 and 1944 to 1/22nd of what it was in 1942, but showed a small rise thereafter; diarrhoea, with even rates during 1942 and 1943, flared up by 45 per cent. in 1944, but fell eventually by 66 per cent. in 1945 and NYD fever, whose rate showed a twofold increase each year during 1942-44 over the previous year's rate, fell down to a fifth in 1945. The fall in the last named condition may have been contributed also by a corresponding improvement in disease diagnosis.

The more important of the diseases that produced higher incidence rates among the VCOs and IORs during this period are given below, in descending order of their absolute rates:—

Absolute rates.

	1942	1943	1944	1945	Average
(1) Malaria	447	485	319	51	326
(2) Venereal diseases ..	39	66	36	34	44
(3) Dysentery	53	34	40	14	35
(4) Minor septic diseases ..	28	36	30	21	29
(5) Diarrhoea	28	28	40	14	27
(6) Common cold	15	35	33	18	25
(7) Skin diseases	12	25	27	18	21
(8) Scabies	16	28	23	9	19
(9) NYD	26	61	113	21	55
Total.. [(1) to (9)] ..	664	798	661	200	581
All diseases	877	1,073	912	350	

It will be seen from the figures given in the preceding table that these nine conditions, among themselves, caused, on an average, three-fifth of sickness due to all diseases. They accounted for 3/4ths of such sickness in 1942, 1943 and 1944; and for 4/7ths of it during 1945. Relative rates for these diseases also bear out this fact which add up to the totals of 75; 74; 74 and 58, respectively, against 100 for all diseases.

By far the heaviest sickness among Indian troops was caused by malaria. For every ten persons sick from all diseases, five suffered from malaria in 1942 and 1943. In 1944 this proportion fell to about one third. A further heavy fall in malaria morbidity took place in 1945 when for every ten sick due to all diseases malaria accounted for, on an average, only 1.4 sick. The relative rates which bear out these conclusions, were 51 per cent. in 1942; 45 per cent. in 1943; 36 per cent. in 1944 and 14.7 per cent. in 1945. In terms of monthly incidence of malaria (Table given on next page) it will be seen that the highest rate during the period, of 135 per 1,000, was reached in July 1943 and the lowest of 2.5 per 1,000 in September 1945.

Monthly Incidence of Malaria: VCOs and IORs: January 1943 to September 1945.

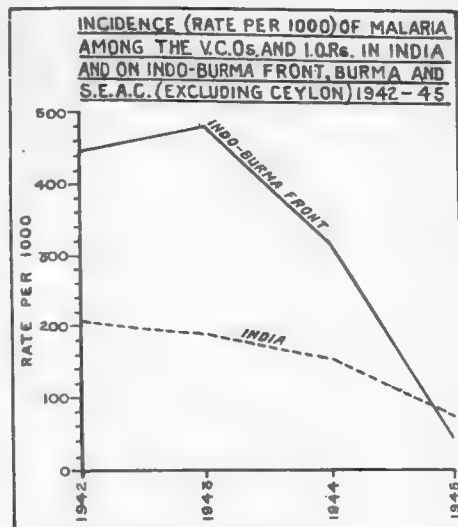
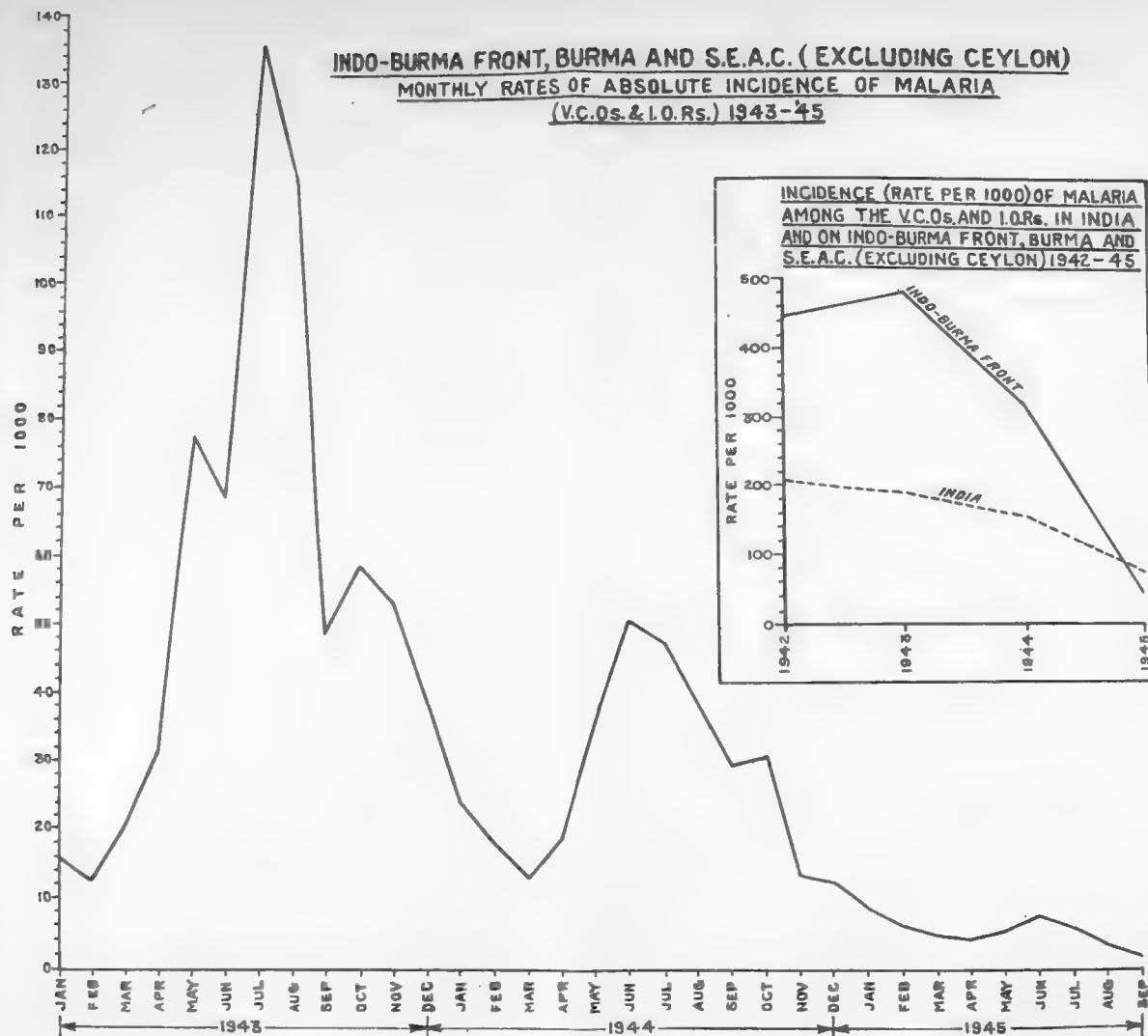
Month			1943	1944	1945
January	..	..	15·86	23·83	8·93
February	..	..	12·08	17·43	6·14
March	..	..	20·59	12·99	4·82
April ..	..	..	31·73	18·86	4·61
May ..	..	..	77·73	35·91	5·54
June ..	..	..	68·29	50·71	7·61
July ..	..	..	135·47	47·14	6·44
August	..	..	115·46	38·33	3·98
September	..	..	48·26	29·51	2·52
October	..	..	58·26	30·52	
November	..	..	53·26	13·05	
December	..	..	38·27	12·53	

Figures of average daily number under treatment from malaria are not available. If available these would show roughly the extent of the loss to the forces due to this disease. Combining, however, the information about average number daily sick from all diseases already mentioned, with the relative rates of malaria against all diseases, it can be estimated that the average number daily sick from malaria might have been as follows:—

			Average number daily sick		Rate per 1,000 of average	
			All diseases	Malaria ⁶	All diseases	Malaria ⁶
1943	..	..	12,356	5,560	46·5	20·9
1944	..	..	10,016	3,606	31·6	11·4
1945	..	..	439	66	1·4	0·2

These figures emphasise the gravity of sickness caused by malaria in 1943 and 1944 and control of the disease in 1945 but what they do not adequately portray is the true state of affairs each day. For example, the average of 5,560, the estimated daily figure for malaria in 1943, can be an average of very high figures during some months of the year and very low ones during the others, or of a uniform number more or less equal to it during all the twelve months of the year. Now, from the medical administrative point of view and that of the field commanders, the former circumstance, which perhaps was the circumstance met with in this case in Burma, is of greater concern than the latter. The medical man,

⁶ Estimated.



in the former case, has to make all manner of provision for the treatment of the sick on a highly elastic basis, which is not always easily possible; and the field commander is threatened with the prospect of large depletions in his forces. This aspect cannot be disentangled from the data made available. They do, however, emphasise that, on an average, about 21 persons were laid by malaria each day out of every 1,000 in 1943; 11.4 per 1,000 in 1944 and only 0.2 in 1,000 in 1945.

The phenomenal fall in the incidence of malaria in 1945, and later which is statistically significant also, was made possible by the energetic anti-malaria measures taken in this Command. Mepacrine was discovered to be a very efficient suppressive for malaria, but its use was restricted to the quantities available till 1943. In the middle of 1943⁷, the maximum amount available was a million tablets, whereas the amount required was very much higher. The Fourteenth Army alone required about 12 million tablets a month in 1944. Supplies started trickling in later, and by 1945 adequate supplies of mepacrine were made available, involving the use of some 40,000,000 tablets a month. Investigations were also carried out to find out an effective mosquito repellent and an insecticide. As a consequence, it was established that liquid dimethyl⁸ phthalate was far superior to other repellents and its extensive use was recommended which became possible in 1945 only. Again, satisfactory quantities of DDT, for use as an insecticide, became available in 1945 only, which helped further to lower the magnitude of malaria incidence in that year. It should, however, be remembered that all these measures were taken simultaneously to fight the scourge of malaria in the forces. It will have to be left to the availability of reliable information to determine as to which of them contributed at a greater rate to the fall in malaria incidence, and by how much. One thing appears highly probable that the greatest benefit to the forces in the fighting areas must have been due to the use of mepacrine and DDT; and to those on the L of C and at the base, the benefit must have been due to a combined use of mepacrine, mosquito repellents, insecticides and personal prophylaxes. It should be possible to appreciate the success achieved by these measures in Burma when corresponding malaria rates for VCOs and IORs in India are placed in juxtaposition. In 1945, this rate in India was 76.1 per 1,000 strength, which is one and a half times as high as that which obtained in this Command (i.e. 51.33 per 1,000 strength). It should again be remembered that the areas covered by South East Asia Command were hyper-endemic for malaria and that its incidence was more than twice as high as in India before 1945, as may be seen from the figures given below:

Incidence of malaria among the VCOs and IORs.

	1942	1943	1944	1945
In India	206.0	192.5	159.5	76.1
On Indo-Burma front ..	447.4	485.6	319.4	51.33

⁷ Report of SAC, SEAC, op. cit.

⁸ Report of SAC, SEAC.

When judged in terms of incidence rates only, the next important cause of sickness among the VCOs and IORs on this front was NYD fever, with absolute rates of 26, 61, 113 and 21 per 1,000, respectively, during the four years under consideration. Their incidence in 1944, when these caused relatively one-third of sickness of malaria, is particularly notable. As the name suggests, NYD fever is a very ambiguous term employed for undiagnosed fevers. It is quite possible that a large number of cases of malaria, in early stages, might have been diagnosed as such. It should be remembered that medical officers could not always diagnose a case properly due to one or the other, or all, of the following reasons:— (i) shortage of time at their disposal; (ii) lack of skill and (iii) lack of diagnostic facilities. Under the circumstances, many cases of malaria and other fevers were diagnosed as cases of NYD fever. The conspicuously high rate in 1944 can be explained on this basis. The sudden fall in the incidence of NYD fever in 1945, as in the case of malaria, is notable. This fact seems to be borne out by looking at the incidence of NYD fever from the point of view of relative morbidity rates (Table 2). It caused 3 per cent. of all sickness in 1942; 6 per cent. in 1943; 12 per cent. in 1944 and 6 per cent. in 1945.

Veneral diseases generally showed an increasing incidence in times of less active warfare. In Table 1 their rates per 1,000 are given as 39 in 1942; 66 in 1943; 36 in 1944 and 34 in 1945. In actual numbers, venereal diseases caused 4,241 cases in 1942; 17,472 cases in 1943; 11,484 cases in 1944 and 10,616 cases in 1945. The relatively high rate in 1943 is difficult to explain unless it be for the fact that troops in that year were being keyed up for the recapture of Burma who, knowing that heavy fighting was ahead, were prone to such indulgences. Except for 1943, the incidence of venereal diseases kept to a uniform level, when looked at from the point of view of absolute rates. In terms of their relative rates, however, these diseases generally showed an increasing share in each year's sickness. The relevant figures are 4 per cent. in 1942; 6 per cent. in 1943; 4 per cent. in 1944 and 10 per cent. in 1945. It may be seen that in 1945 practically every disease showed reduced incidence. The high relative rate of venereal diseases in that year might, therefore, be due to the comparatively larger number of admissions due to these diseases against a reduced annual total from the rest which point is not fully brought out by the absolute rate of incidence.

It is worth mentioning here that throughout this discussion, any conclusion which is borne out simultaneously by the relevant absolute and relative morbidity rates, should be considered as better established than that which is supported by one of them only. If dysentery and diarrhoea are taken into consideration *as a whole*, they would certainly become the second most important cause of sickness, next to malaria, among VCOs and IORs. In this analysis, however, dysentery will be considered separately from diarrhoea. The incidence of dysentery was 53 per 1,000 in 1942; 34 per 1,000 in 1943; 40 per 1,000 in 1944 and 14 per 1,000 in 1945. The corresponding relative rates were 6, 3, 4 and 4 respectively. The seriousness of the incapacity caused to the fighting forces by this disease demanded continuous attention of

the authorities towards possible means of reducing its incidence and improving methods of treatment. Sulpha drugs were made available which, after the summer of 1944, showed "dramatic" results. In addition, DDT was used largely as a fly-killer towards the end of 1944. Both these measures not only prevented the spread of this disease but made the treatment of its cases more efficient which enabled a highly reduced incidence to be reported in 1945. Separate figures for various types of dysentery are not available. To that extent this study has to remain less complete. Figures of monthly admissions due to dysentery among the VCOs and IORs are, however, available and are given below. They show that comparatively higher incidence from this disease occurred during the months April-May to August, each year:—

Monthly admissions to hospitals, and rate per 1,000 from dysentery.

	1943		1944		1945	
	Actual Admissions	Rate per 1,000	Actual Admissions	Rate per 1,000	Actual Admissions	Rate per 1,000
January ..	319	0.12	188	0.65	348	0.97
February ..	330	1.17	471	1.66	323	0.87
March ..	462	2.41	935	3.07	431	1.18
April ..	467	2.46	1,210	3.79	903	2.74
May ..	1,184	5.71	1,713	5.19	703	2.46
June ..	1,369	5.94	1,741	5.80	540	1.96
July ..	1,193	4.92	1,688	5.23	483	1.78
August ..	1,171	4.34	1,393	4.30	373	1.46
September ..	791	2.74	1,183	3.78	171	0.65
October ..	732	2.52	766	2.47		
November ..	778	2.79	536	1.51		
December ..	652	2.44	373	1.05		

It will also be seen from the figures given above that the highest absolute rate from dysentery occurred in June 1943 and again in June 1944 when it was equal to 5.9 per 1,000. In actual numbers also these months indicated the heaviest sickness from this disease. It is significant, to note that, as among the various months of 1945, it was from April to August that an increased infection from this disease was noticed. The lowest rate for any month during the period was recorded in September 1945, at 0.6 per 1,000.

Cases of diarrhoea that occurred during these four years among the VCOs and IORs were 2,994 in 1942; 7,400 in 1943; 12,551 in 1944 and 4,250 in 1945. The corresponding rates per 1,000 of strength were 28, 28, 40 and 14 respectively. The decline in absolute rate of about one-third in 1945 over that in 1944 is not quite borne out by the corresponding relative rates, which show that the relative contribution

of diarrhoea to total sickness fell from 4·3 in 1944 to 4·0 in 1945. The reason for the high figure of relative rate in 1945 probably was reduced overall sick admissions in that year. Diarrhoea cases were about one-third in 1945 of those in 1944; whereas this reduction was not registered by all the other diseases uniformly. The falling absolute rates of incidence of this disease during this period were due to the same causes as applied to dysentery. Figures of monthly admissions to hospitals due to diarrhoea are given below:—

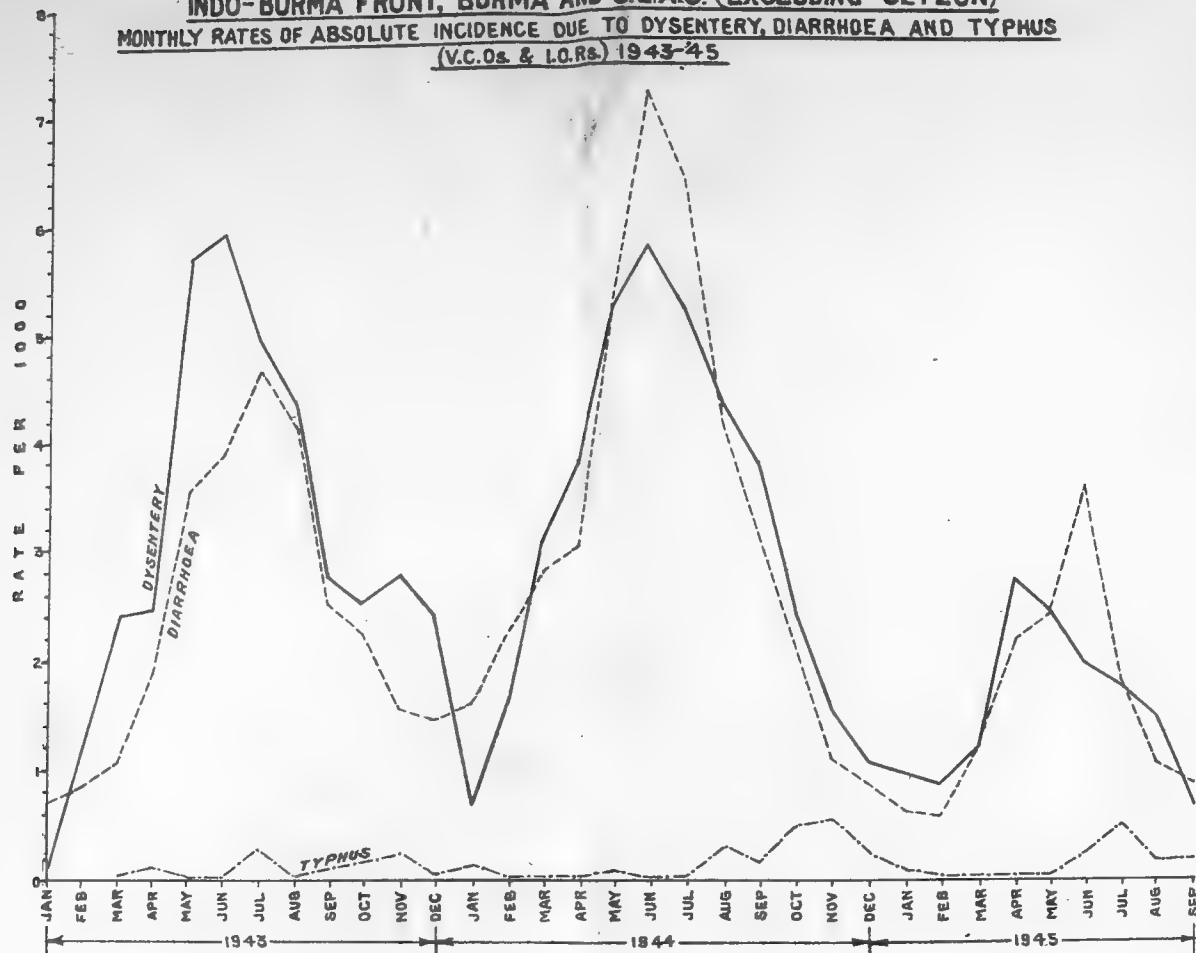
Monthly admissions to hospitals and rate per 1,000 from 'diarrhoea.'

		1943		1944		1945	
		Actual Admissions	Rate per 1,000	Actual Admissions	Rate per 1,000	Actual Admissions	Rate per 1,000
January	..	195	0·68	467	1·61	219	0·61
February	..	244	0·86	626	2·21	215	0·58
March	..	205	1·07	853	2·80	432	1·19
April	..	359	1·89	967	3·03	712	2·16
May	..	729	3·52	1,756	5·32	686	2·40
June	..	895	3·89	2,164	7·21	992	3·64
July	..	1,939	4·70	2,085	6·46	497	1·84
August	..	1,119	4·15	1,350	4·17	265	1·04
September	..	718	2·49	956	3·06	232	0·83
October	..	654	2·25	648	2·09		
November	..	433	1·55	375	1·06		
December	..	388	1·45	304	0·86		

It will be seen from the figures given above that, like malaria and dysentery, the heaviest sickness due to diarrhoea among the VCOs and IORs occurred during the months from April-May to August, each year. The spread of monsoons in Burma is also from middle of May to September-October each year. Among the above figures, the four months, May to August 1944, seem to be of exceptionally heavy sickness and might be indicative of something like an epidemic in the forces during those months. The highest absolute rate of about 7·2 per mille, was also recorded during June 1944. The wide use of DDT and sulpha drugs, besides other measures, to combat the disease brought down its sickness to a low admission figure of 232 in September 1945, with an absolute rate of 0·8. There appears to be a direct correspondence between the rainy season and high incidence of diarrhoea among the VCOs and IORs.

In warfare which is conducted on a terrain like that of Burma, where thick jungles, heavy rains and intense heat of the sun prevail, it is natural that among other diseases, skin diseases also should be a source of trouble to the forces. In Tables 1 and 2, skin diseases and scabies have been shown separately. The rates of the former were 12·4 per

INDO-BURMA FRONT, BURMA AND S.E.A.C. (EXCLUDING CEYLON)
MONTHLY RATES OF ABSOLUTE INCIDENCE DUE TO DYSENTERY, DIARRHOEA AND TYPHUS
(V.C.O.s. & L.O.R.s) 1943-45



1,000 in 1942; 25.4 in 1943; 26.7 in 1944 and 17.8 in 1945. Its corresponding relative morbidity rates were 1.4; 2.4; 2.9 and 5.1 per cent. respectively. The conclusion emerges that there was a reduction in the absolute rate of incidence of skin diseases from 1944 to 1945 but relatively these diseases continued to have great importance in 1945 also. Admissions due to scabies were 1,721 in 1942; 7,352 in 1943; 7,431 in 1944 and 2,915 in 1945 with corresponding absolute rates of 15.9; 27.6; 23.4 and 9.5, respectively. That its importance relatively among diseases each year did not go down very much can be seen from its relative morbidity rates of 1.8 in 1942; 2.6 in 1943; 2.6 in 1944 and 2.7 in 1945.

Other important diseases, from the point of view of their incidence during this period, were minor septic diseases and common cold. The incidence of minor septic diseases increased from 28 per 1,000 in 1942 to 35.6 per 1,000 in 1943; fell to 29.5 in 1944 and further to 21.0 in 1945. Diseases included under this head have been given in the introductory remarks to this chapter. Their incidence was fairly constant for the first three years at about 3 per cent. of all the diseases, which, however, increased to 6 per cent. in 1945. Common cold behaved almost identically to minor septic diseases, in so far as its incidence during the four years is concerned, but its relative rates showed a continuously increasing trend from year to year. The relevant rates were 1.7 in 1942; 3.2 in 1943; 3.6 in 1944 and 5.1 per cent. in 1945. Hepatitis caused sickness at an increasing rate throughout the period as will be seen from the absolute rates and relative rates in Tables 1 and 2. A distinction between cases of amoebic and non-amoebic hepatitis may be made from the following figures:—

Hepatitis admissions.

	1942	1943	1944	1945
Amoebic ..	8 (0.0)	..	289 (1.0)	164 (0.53)
Non-amoebic ..	53 (0.5)	566 (2.13)	3,588 (11.3)	3,224 (10.47)
Total ..	61	566	3,877	3,388

Figures in parentheses indicate absolute rates per 1,000 strength.

It will be seen that about 90 per cent., and more, of cases of hepatitis were due to non-amoebic hepatitis. Mumps had comparatively high incidence in 1942 when its rate was 10.8 per 1,000 which accounted for 1.24 per cent. of the total sickness in that year. From 1943 onwards it kept to an even rate of incidence around 4.5 per 1,000. Its relative rate, however, showed an increase in 1945. Diseases of ENT and diseases of the eye, other than trachoma, showed an increase in their rate per 1,000 from 1942 to 1943, but a great decline thereafter till 1945. Influenza showed a continuously declining trend from 1942 to 1945. Its relative importance in 1942 was as high as 1.3 per cent. among all

the diseases but was reduced to 0.25 per cent. in 1943. Its absolute rate in 1945 was about 1/22nd of what it was in 1942.

To sum up, the relative importance of each of the major diseases, every year, may briefly be stated in round figures as follows:—

1942—For every 100 persons sick from all diseases, 51 were due to malaria, 3 due to NYD fever, 4 due to venereal diseases, 6 due to dysentery, 3 due to minor septic diseases, 3 due to diarrhoea, 2 due to common cold, 1 due to skin diseases, 2 due to scabies and 25 due to the remaining diseases.

1943—In every 100 sick from all diseases, malaria accounted for 45, NYD for 6, venereal diseases for 6, dysentery, minor septic diseases, diarrhoea and common cold each for 3, skin diseases for 2, scabies for 3, and the remaining diseases for 26.

1944—Out of every 100 sick, 36 were from malaria, 12 due to NYD fever, 4 each due to dysentery, venereal diseases, diarrhoea and common cold, three each due to minor septic diseases, scabies, and skin diseases and 27 from the remaining diseases.

1945—The corresponding figures for 1945 were malaria 15, NYD fever 6, venereal diseases 10, dysentery 4, minor septic diseases 6, diarrhoea 4, common cold 5, skin diseases 5, scabies 3 and other diseases 42.

A morbid condition may bear importance for either its high incidence or uniqueness and speciality. Disease conditions that have been considered so far in this chapter, all bore high incidence rates. What follows now falls into the second category. Among them there are some which are more important and possess direct relevance to the terrain and climate of Burma than the others. They are dengue, oriental sore, sandfly fever, scrub typhus and effects of heat. Typhus in them caused the greatest concern at one time to the authorities in this Command. Figures here have not been specified between the different varieties of typhus; but it can be assumed, without any mistake, on the basis of indirect evidence, that almost all the cases reported on this front were scrub typhus cases. Monthly incidence of typhus among the VCOs and IORs, is given in the following table.

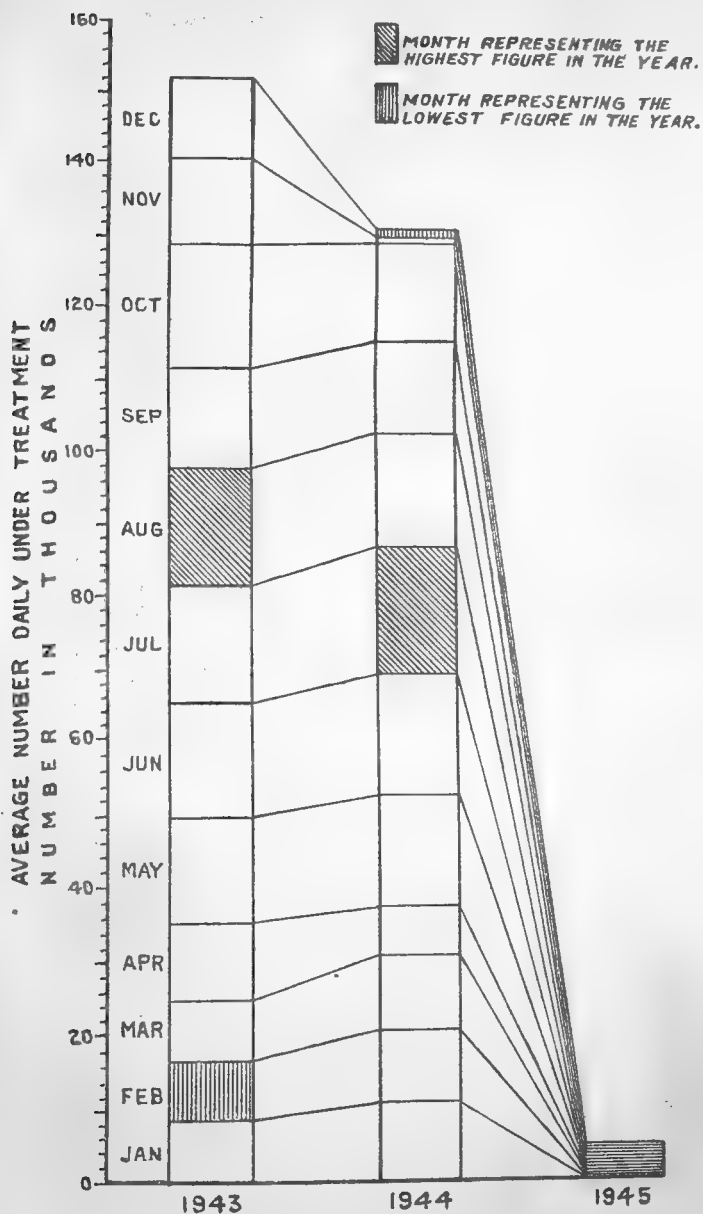
Absolute incidence of typhus fever.

	1943	1944	1945
January .. ..	..	0.14	0.07
February	0.00	0.02	0.03
March	0.03	0.02	0.02
April	0.12	0.03	0.03
May	0.03	0.08	0.03
June	0.02	0.04	0.21
July	0.27	0.03	0.48
August	0.02	0.29	0.16
September	0.11	0.14	0.18
October	0.18	0.48	
November	0.23	0.55	
December	0.04	0.23	

INDO-BURMA FRONT

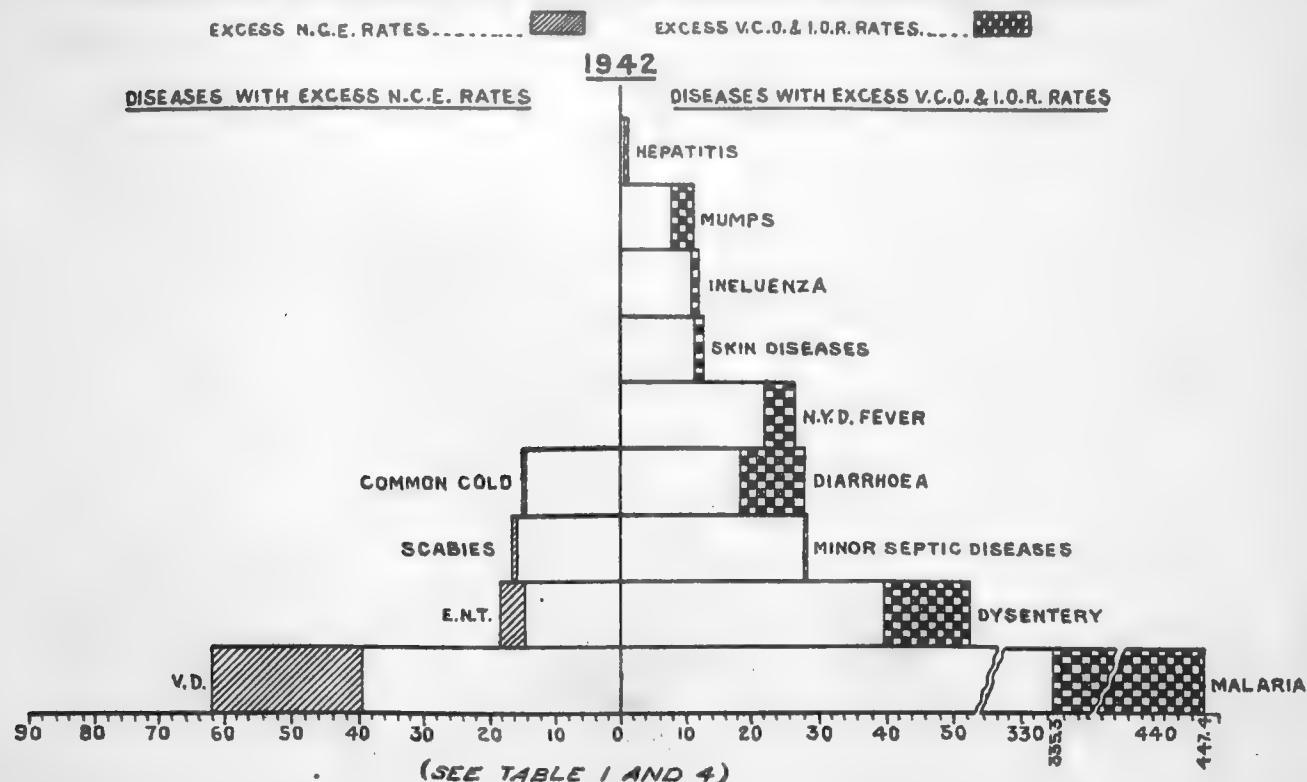
AVERAGE NUMBER DAILY UNDER TREATMENT BY MONTHS

(V.C.O.s. & I.O.R.s.) 1943 - 1945



INDO-BURMA FRONT

DIFFERENTIALS WITH RESPECT TO ABSOLUTE INCIDENCE OF IMPORTANT DISEASES



It will be seen from these figures that the statistical contribution of typhus to total morbidity or non-effective rate was never of a very high order. It is known, however, that scrub typhus in Burma carried a fatality rate as high as 20 per cent. or even higher. It had profound effect on morale of the troops. What is possible but not inferable from the above table is that the incidence of typhus fever was high among the troops that were at risk. The figures cited above and the available annual rates only show incidence per 1,000 of all troops, instead of only those that were at risk in a particular area. Monthly rates per 1,000 given above, failed to show a regular trend except the heavier rates each October and November, probably because this disease was not very evenly prevalent among all the troops on this front. An increased incidence in different places and at different times, among some of the troops, highly infected with this disease, fails to be properly reflected in the totality which presumably was what actually had happened. Figures of annual incidence are given in the table on page 8. It had a rate of 3 per 10,000 in 1942; 10 per 10,000 in 1943; 21 per 10,000 in 1944 and 11 per 10,000 in 1945. Its relative rates, on the other hand, showed an increasing trend from year to year. Very little about this disease was known till 1943 but its appearance made the widest possible search being carried out for investigating the causes of its spread and prevention. Scrub Typhus Research Teams of SEAC and India Command and a Team from the Typhus Commission of the USA undertook to tackle the problem. By 1945 its incidence in consequence was greatly reduced.

A distinct fall is indicated in the incidence of dengue, from 2.5 per 1,000 in 1942 to 0.4 per 1,000 in 1943 and an increase from 0.4 per 1,000 in 1944 to 0.91 in 1945. It is understood that epidemics of dengue occur with suddenness, incapacitating very large numbers at a time. No such trend can be traced in the figures of absolute incidence of this disease given above. Oriental sore (Leishmaniasis) had rates of 0.2 per 1,000 during 1942-43 and 0.03 per 1,000 during 1944 and 1945. Sandfly fever produced absolute rates of 0.1 per 1,000 in 1942; 0.3 in 1943; 0.1 in 1944 and 0.5 in 1945. Similar undulations are discernible in its relative rates over the period.

Cholera, enteric group of fevers, major septic diseases and smallpox are important, among other things, from their public health aspect. Except for major septic diseases, the average incidence of the other three did not rise above 4 per 10,000 or 0.4 per 1,000. Cholera registered a falling absolute rate and relative rate during the four years and enteric group of fevers a falling absolute rate but a relative rate without any uniform trend. The increasing absolute rate for smallpox upto 1944 and its increasing relative rate over the whole period are notable. There was large variation in the rates of major septic diseases from year to year.

Some diseases are important also for measuring ethnic group differentials, e.g. tuberculosis, trachoma, tonsillitis and pneumonia. On an average, about 16 VCOs and IORs are shown to have been suffering from tuberculosis in every 10,000 during these years. Its absolute rate

was 2·1 per 1,000 in 1942 which gradually fell to 1·3 in 1945. Trachoma showed a falling rate but tonsillitis kept close to a uniform rate of 3 per 1,000 throughout; and pneumonia fell from over 3 per 1,000 to a lower figure during these years.

Mental and psychoneurotic diseases showed increasing rates of absolute incidence. The relevant rates were 1·5, 2·9, 4·6 and 5·5 per 1,000 respectively. Similar trend has been registered by their relative rates also.

The percentage contributions of each group of diseases to total casualties (sick and injured), for each year, are given as Relative Casualty Rates in Table 3. It will be seen from it that the share of "infective and parasitic diseases" was as high as 66 per cent. during 1942. It fell to 59 per cent. in 1943; 48 per cent. in 1944 and to 36 per cent. in 1945. The percentage fall each year is shown by figures given below:—

From			To	Per cent. fall
1942	..	..	1943	10·6
1943	..	..	1944	18·6
1944	..	..	1945	25·0
1942	..	..	1945	40 per cent.

These percentages tell in brief the whole story about the results achieved by this Command over disease. Most of the diseases which had assumed menacing proportions in 1942-43, like malaria and dysentery, and many others, are included in this group. The intrinsic damage they could cause to the forces, if left unchecked, is latent in the 1942 percentage, when about seven out of every ten persons sick from *all causes* were due to infective and parasitic diseases.

Another noticeable fact in Table 3 is that a large share of the fall in the relative percentage of 'infective and parasitic diseases', from year to year, is reflected in a corresponding fall in the share of all diseases to total casualties. The group which appears to have absorbed some of the fall in the first group and to have somewhat kept the share of all diseases up is "symptoms, senility and ill defined conditions". This group, it will be remembered, consists among other diseases, of NYD fever and PUO, a reference to the individual shares of which was alluded to earlier.

All diseases taken together seem to have contributed 95 per cent. of total casualties each during 1942 and 1943; and about 91 per cent. in 1944. In 1945, they caused 82 per cent. of all the casualties.

The relative share of war wounds and injuries among all causes was about 5 per cent. each in 1942 and 1943. The increase in the tempo of war from the summer of 1944 on this front is also reflected in the share war wounds and injuries bore in 1944 and 1945. The relevant

percentages are 9 and 18 respectively. Within this group, percentage of injuries due to enemy action, increased from 0.61 per cent. in 1942 and 0.88 per cent. in 1943 to 4.45 per cent. in 1944 and 7.77 per cent. in 1945. In terms of absolute rates, the impact of enemy action increased in a manner given in the following argument. In 1942, about 6 VCOs and IORs in every 1,000 were admitted to hospital due to enemy action only; 10 in every 1,000 in 1943; 45 during 1944 and about 33 during 1945.

Finally, a reference to the following table may well be made:—

Relative casualty rates for enemy action and other casualties.

	1942	1943	1944	1945
(1) All diseases ..	95	95	91	82
(2) Injuries, non-enemy action	4	4	5	10
(3) Injuries enemy action ..	99 1	99 1	96 4	92 8
Total ..	100	100	100	100

On the whole, the increasing incidence of war wounds, from the absolute and relative rates points of view, with the passage of time on this front, gets reinforced by these figures and those of Table 1.

CONCLUSION

The average annual incidence for VCOs and IORs during the first three years of war in Burma equalled, or was more than, one admission for each soldier each year. It was reduced to less than half by 1945. Diseases alone accounted for 95 per cent. of all casualties each in 1942 and 1943; but for 91 per cent. and 82 per cent. respectively during 1944 and 1945.

Average daily number under treatment was highest at 17,529 in July 1944, but was brought down to 281 in September 1945. Malaria admissions during these months were 15,209 and 660 respectively.

Diseases which caused high sickness rates among the VCOs and IORs were in descending order; malaria, NYD fever, venereal diseases, dysentery, minor septic diseases, diarrhoea, common cold, skin diseases and scabies.

For every case of war wound there were 99 sick cases each in 1942 and 1943; but only 24 such in 1944 and 11 in 1945.

TABLE 1

*Admissions to Hospitals—Annual rates per 1,000 strength: VCOs and IORs:
SEAC (Indo-Burma Front)*

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.4	0.5	0.2	0.08
Cholera	0.4	0.7	0.2	0.20
Dengue	2.5	0.4	0.4	0.91
Diphtheria .. ..	..	0.2	0.04	0.07
Dysentery	52.8	33.6	40.0	13.88
Enteric group of fevers ..	0.4	0.5	0.2	0.17
Hepatitis	0.5	2.13	12.3	11.00
Malaria	447.4	485.6	319.4	51.33
Major septic diseases ..	0.0	4.0	0.8	1.12
Minor septic diseases ..	28.0	35.6	29.5	21.01
Mumps	10.8	4.4	4.6	4.67
Oriental sore	0.2	0.2	0.03	0.03
Pediculosis	0.0	0.03	..	..
Plague .. ..	..	0.0	..	..
Poliomyelitis	0.0	0.01	..	0.00
Sandfly fever	0.1	0.3	0.1	0.53
Scabies	15.9	27.6	23.4	9.47
Smallpox	0.2	0.5	0.6	0.30
TB lungs	1.5	1.2	1.0	0.86
TB others	0.6	0.2	0.3	0.48
Trachoma	1.9	1.9	1.4	0.81
Typhus fever	0.3	1.0	2.1	1.11
VD fresh	37.8	62.9	32.2	34.47
VD relapse	1.4	2.8	4.1	
Total	603.18	666.70	482.01	152.50
(2) <i>Allergic Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri	0.0	0.01	0.01	0.02
Scurvy	0.1	0.3	0.01	0.05
Total	0.17	0.30	0.03	0.07
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	3.07
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases	1.5	2.9	4.6	5.50
(5) <i>Diseases of the Nervous system and Sense organs</i>				
ENT diseases	14.8	19.1	17.7	10.16
Eye diseases other than trachoma	9.4	17.7	12.9	9.93
Total	24.30	36.81	30.55	20.09

TABLE 1—(Contd.).

Diseases	1942	1943	1944	1945
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0·6	1·4	0·3	0·21
Other circulatory diseases	4·6	3·8	4·7	1·97
Total ..	5·20	5·18	50·1	2·18
(7) <i>Diseases of the Respiratory system</i>				
Common cold ..	14·5	34·6	33·0	17·99
Tonsillitis ..	3·0	3·5	3·0	2·58
Influenza ..	11·7	2·7	0·5	0·47
Pneumonia ..	3·5	..	2·3	2·74
Other respiratory diseases	21·6	29·5	23·7	15·59
Total ..	54·38	70·27	62·56	39·37
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea ..	27·7	27·8	39·6	13·80
Other digestive diseases ..	22·2	34·6	36·9	16·96
Total ..	49·96	62·67	76·50	30·76
(9) <i>Diseases of the Skin and Cellular tissues</i>				
Skin diseases ..	12·4	25·41	26·7	17·82
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever ..	26·1	60·5	112·8	21·05
PUD ..	4·1	11·9	2·2	0·29
Total ..	30·29	72·31	115·02	21·34
(11) <i>All other diseases</i> ..	96·0	130·81	108·7	57·05
(12) <i>All diseases</i> ..	877·4	1,073·4	911·7	349·75
(13) <i>Accidents, poisoning and violence (Non-battle injuries)</i>				
Burns and scalds ..	..	..	2·3	3·24
Other local injuries ..	37·8	45·7	45·6	40·06
Total ..	37·8	45·7	47·9	43·30
(14) <i>Accidents, poisoning and violence (Battle Injuries)</i>				
Injuries caused by blast ..	..	..	0·4	0·09
Bomb wounds ..	0·0	3·2	11·4	8·79
Gunshot wounds ..	5·0	5·0	21·1	16·92
Shell wounds ..	0·5	1·7	11·7	7·31
Total ..	5·61	9·89	44·65	33·12
(15) <i>All cases</i> ..	920·83	1,128·9	1,004·3	426·17

TABLE 2

Relative morbidity rates: VCOs and IORs: SEAC (Indo-Burma Front).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.06	0.05	0.02	0.02
Cholera ..	0.05	0.07	0.02	0.06
Dengue ..	0.29	0.03	0.04	0.26
Diphtheria ..	..	0.01	0.00	0.02
Dysentery ..	6.02	3.13	4.39	3.97
Enteric group of fevers ..	0.05	0.05	0.02	0.05
Hepatitis ..	0.06	0.20	1.34	3.14
Malaria ..	50.99	45.24	36.07	14.67
Major septic diseases ..	0.01	0.38	0.09	0.32
Minor septic diseases ..	3.23	3.32	3.23	6.01
Mumps ..	1.24	0.41	0.51	1.33
Oriental sore ..	0.02	0.02	0.00	0.00
Pediculosis ..	0.00	0.00	..	..
Plague ..	..	0.00	..	..
Poliomyelitis ..	0.00	0.00	..	0.00
Sandfly fever ..	0.01	0.03	0.01	0.15
Scabies ..	1.82	2.58	2.57	2.71
Smallpox ..	0.02	0.05	0.06	0.09
TB lungs ..	0.17	0.11	0.10	0.24
TB others ..	0.07	0.02	0.03	0.14
Trachoma ..	0.12	0.18	0.15	0.23
Typhus fever ..	0.03	0.10	0.23	0.32
VD fresh ..	4.31	5.86	3.53	9.86
VD relapse ..	0.16	0.26	0.44	
Total ..	68.73	62.10	52.85	43.59
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri ..	0.00	0.00	0.00	0.00
Scurvy ..	0.02	0.03	0.00	0.01
Total ..	0.02	0.03	0.00	0.01
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia ..	..	..	..	0.88
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	0.17	0.27	0.50	1.57
(5) <i>Diseases of the Nervous system and Sense organs</i>				
ENT diseases ..	1.69	1.78	1.94	2.90
Eye diseases other than trachoma ..	1.08	1.65	1.41	2.84
Total ..	2.77	3.43	3.35	5.74

TABLE 2—(Contd.).

Diseases	1942	1943	1944	1945
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0·07	0·13	0·03	0·06
Other circulatory diseases	0·53	0·35	0·52	0·56
Total	0·60	0·48	0·55	0·62
(7) <i>Diseases of the Respiratory system</i>				
Common cold ..	1·66	3·22	3·62	5·14
Tonsillitis	0·34	0·33	0·33	0·74
Influenza	1·33	0·25	0·06	0·13
Pneumonia	0·40	..	0·25	0·78
Other respiratory diseases	2·47	2·74	2·60	4·46
Total	6·20	6·54	6·86	11·25
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea	3·16	2·59	4·34	3·95
Other digestive diseases ..	2·54	3·25	4·05	4·85
Total	5·70	5·84	8·39	8·80
(9) <i>Diseases of the Skin and Cellular tissues</i>				
Skin diseases ..	1·41	2·37	2·93	5·09
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever	2·98	5·64	12·37	6·02
PUO	0·47	1·11	0·25	0·08
Total	3·44	6·74	12·62	6·10
(11) <i>All other diseases</i> ..	10·94	12·18	11·92	16·31
(12) <i>All diseases</i>	100·00	100·00	100·00	100·00

NOTE—Individual totals may not exactly add up to 100 due to rounding off.

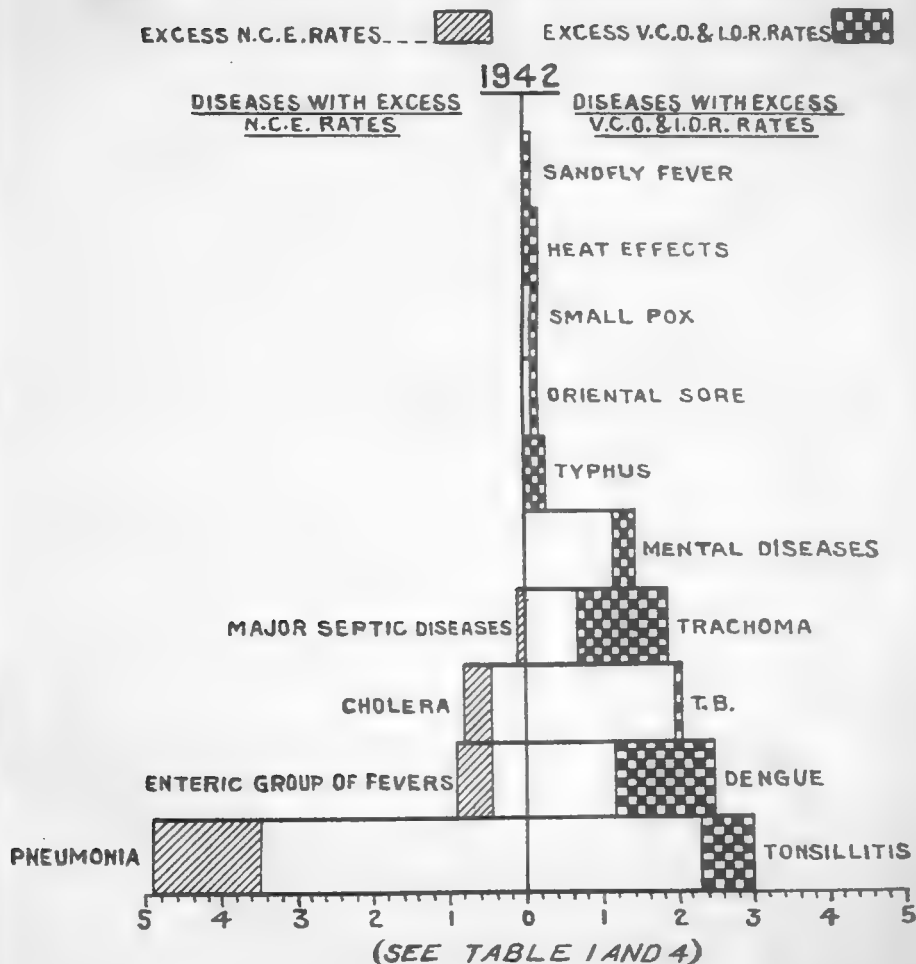
TABLE 3

Relative Casualty rates: VCOs and IORs: SEAC (Indo-Burma Front).

Specialist Groups	1942	1943	1944	1945
(1) Infective and parasitic diseases	65.50	59.06	48.00	35.78
(2) Allergic, endocrine system, metabolic and nutritional diseases	0.02	0.03	0.00	0.02
(3) Diseases of the blood and blood forming organs .. ..	..	..	..	0.72
(4) Mental, psychoneurotic and personality disorders	0.16	0.26	0.45	1.29
(5) Diseases of the nervous system and sense organs ..	2.64	3.26	3.04	4.71
(6) Diseases of the circulatory system	0.57	0.46	0.50	0.51
(7) Diseases of the respiratory system	5.91	6.22	6.23	9.24
(8) Diseases of the digestive system	5.43	5.55	7.62	7.22
(9) Diseases of the skin and cellular tissues	1.35	2.25	2.66	4.18
(10) Symptoms, senility and ill-defined conditions ..	3.28	6.41	11.45	5.01
(11) All other diseases ..	10.43	11.58	10.82	13.38
(12) All diseases	95.28	95.08	90.78	82.07
(13) All battle and non-battle injuries	4.72	4.92	9.22	17.93
(14) All cases	100.00	100.00	100.00	100.00

INDO-BURMA FRONT

DIFFERENTIALS WITH RESPECT TO ABSOLUTE INCIDENCE OF SOME OF THE LESS IMPORTANT DISEASES



INDO-BURMA FRONT

DIFFERENTIALS WITH RESPECT TO ABSOLUTE INCIDENCE OF IMPORTANT DISEASES

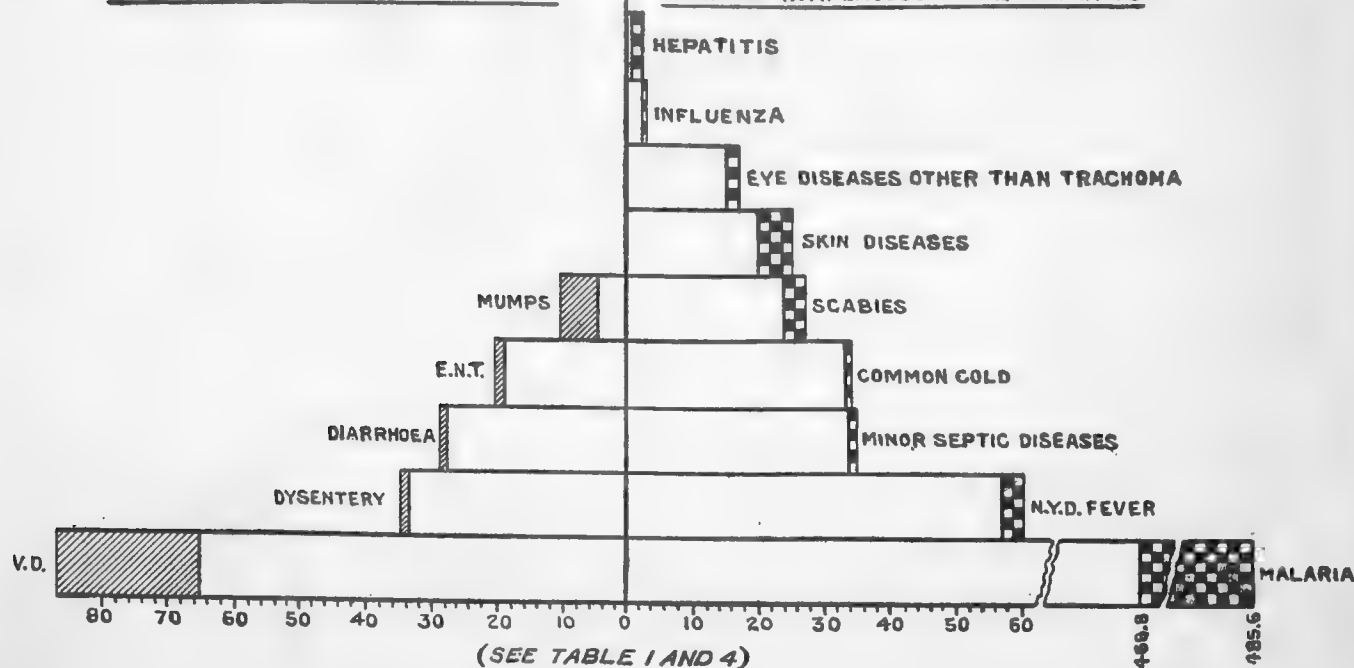
EXCESS M.C.E. RATES.....

EXCESS V.C.O. & I.O.R. RATES...

1943

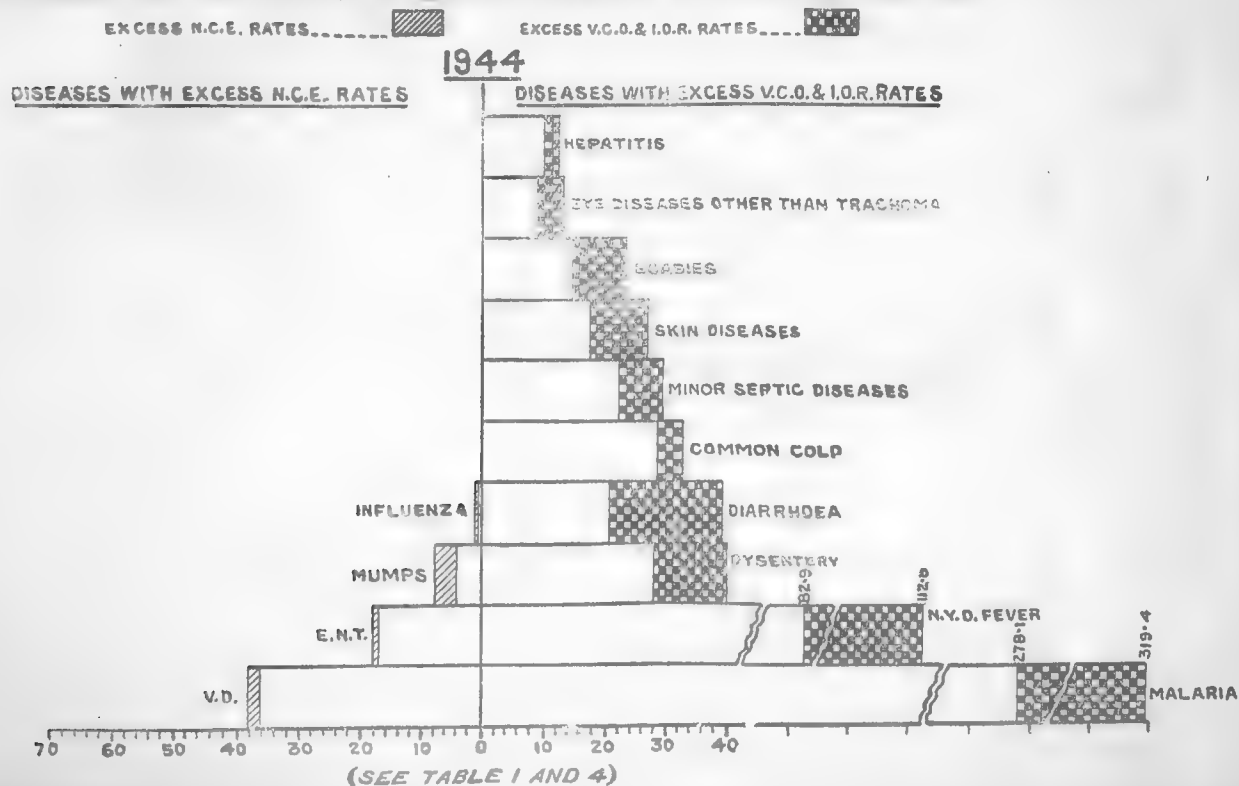
DISEASES WITH EXCESS M.C.E. RATES

DISEASES WITH EXCESS V.C.O. & I.O.R. RATES



INDO-BURMA FRONT

DIFFERENTIALS WITH RESPECT TO ABSOLUTE INCIDENCE OF IMPORTANT DISEASES



INDO-BURMA FRONT

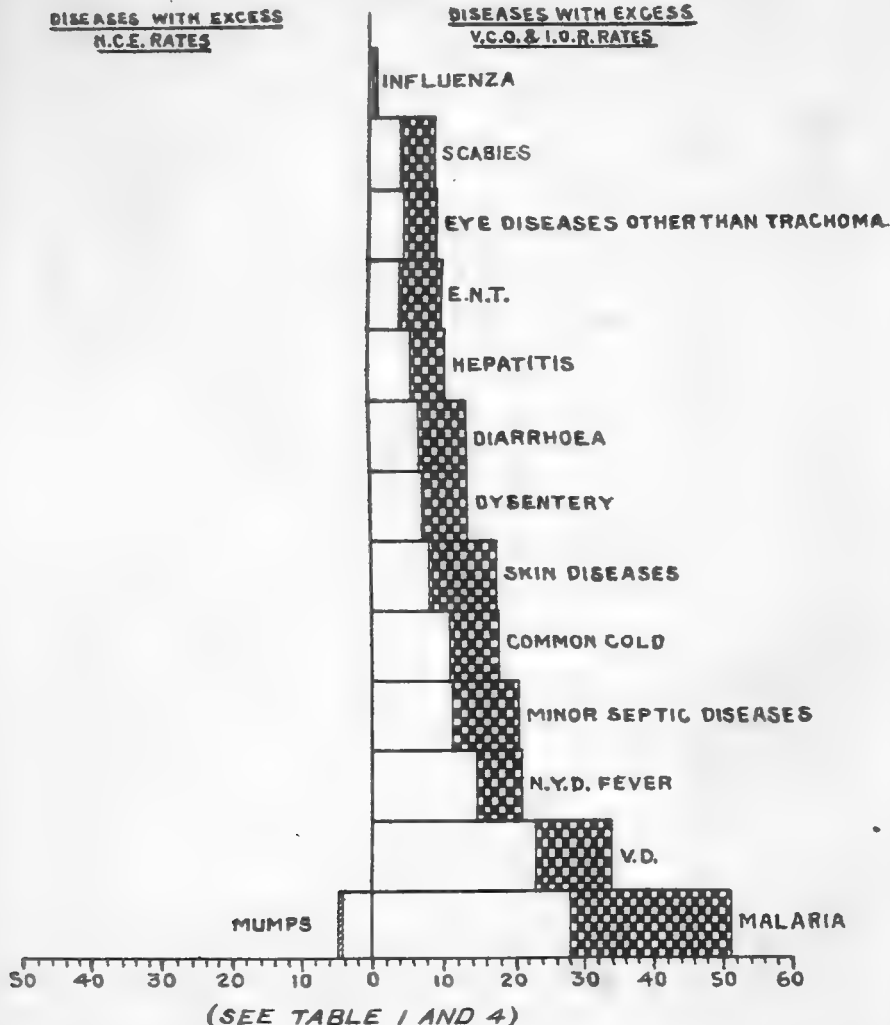
DIFFERENTIALS WITH RESPECT TO ABSOLUTE INCIDENCE OF IMPORTANT DISEASES

EXCESS M.C.E. RATES.....  EXCESS V.C.D. & I.O.R. RATES... 

1945

DISEASES WITH EXCESS
M.C.E. RATES

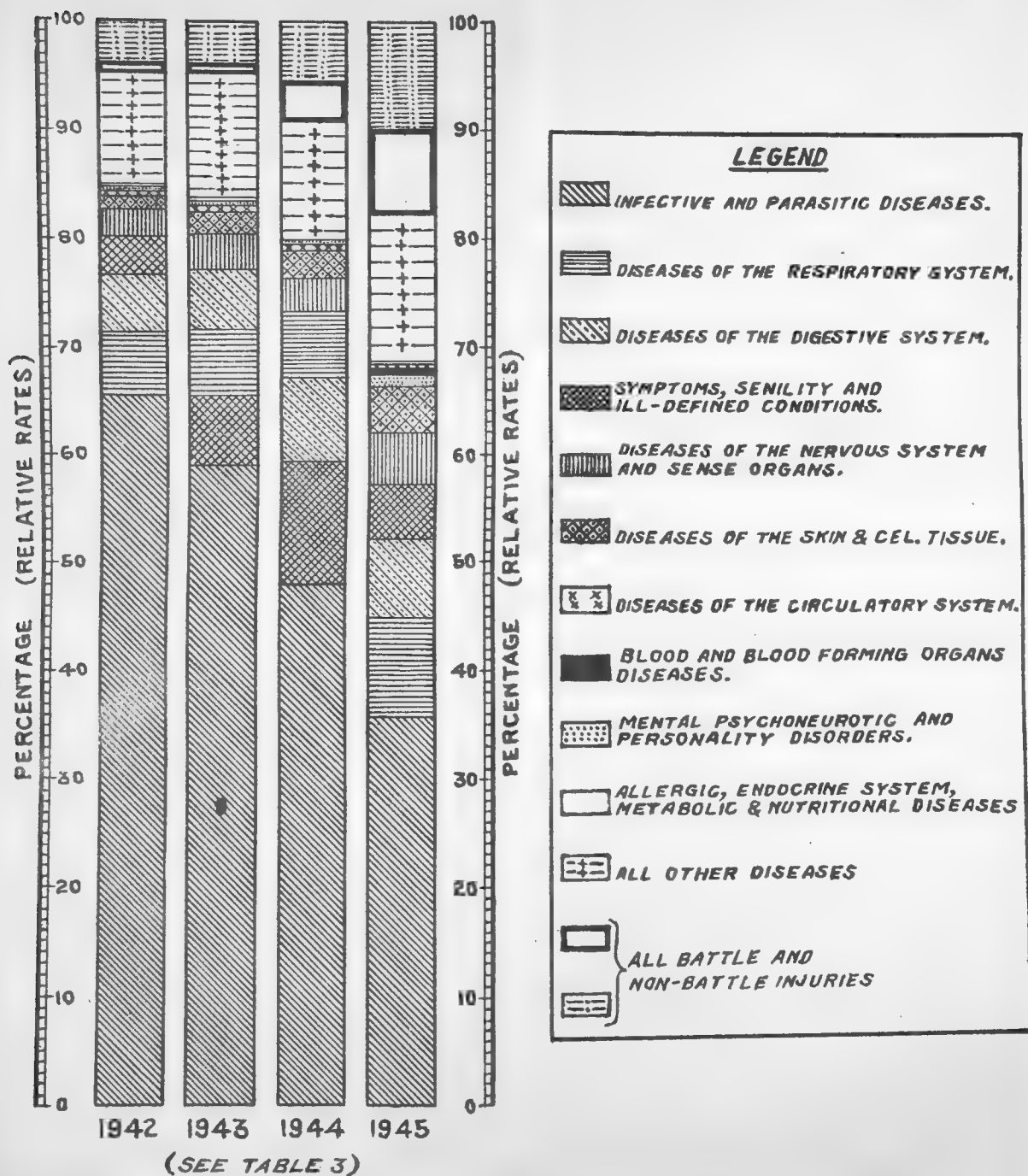
DISEASES WITH EXCESS
V.C.D. & I.O.R. RATES



INDO-BURMA FRONT

RELATIVE CASUALTY RATES DUE TO GROUPS OF DISEASES

(V.C.Os. & I.O.Rs.) 1942-'45



Section III

NON-COMBATANTS (ENROLLED)

The major distinguishing feature of the troops known as NCs(E) is that they catered to the multitudinous needs of the fighting soldier. They moved from place to place with him and to that extent were vulnerable to the same hazards and injuries as the fighting men. They lived generally under the same trying conditions as the combatant soldier and, therefore, their sickness history should more or less be also of the same type.

Annual rates of incidence for each disease among the NCs(E) were consistently lower than the corresponding rates for the VCOs and IORs except for mumps, venereal diseases and ENT diseases. It has already been stated that conditions in Burma were favourable for the spread of diseases like malaria, dysentery, diarrhoea, skin diseases. It seems, that a differential persisted between the infectiveness of areas where the troops (including the NCs(E)) stayed and those on which they fought, although they were not very far apart. Generally, NCs(E) may broadly be taken to belong to the same ethnic group as the Indian combatant troops; they were serving at the same time and the only easily recognisable difference lay in their category. The higher incidence of mumps, venereal diseases and ENT diseases among them than that among the VCOs and IORs appears to be due to the fact that a less rigorous discipline was imposed upon the NCs(E); they had relatively greater leisure and were subject to lower standards of physical fitness in recruitment. Mumps was prevalent among them at a rate of 7.4 per 1,000 in 1942 which increased by 40 per cent. to 10.4 per 1,000 in 1943. During 1944 and 1945, a gradual decline in its incidence was registered, the rate in the last year being 4.39 per 1,000. Its relative rates over the period show (Table 5) that it had a uniform contribution of about one per cent. to make upto 1944, after which, in 1945, it caused 2.4 per cent. sickness of all sickness. Actual figures of admissions due to mumps during the four years were 258, 1,125, 797 and 488, respectively. Its higher relative rate in 1945 against a lower figure of actual admissions can be explained as follows. The rate of fall in admissions due to mumps from 1944 to 1945 was very much less comparatively against that due to other diseases and due to total admissions. A lightly falling figure against a heavily falling total should give higher relative rates. The incidence of ENT diseases increased from 1942 to 1943 and showed a decreasing trend thereafter. Similar was the case with actual admissions due to them. Their relative rates over the period remained fairly constant, except in 1943 when it had registered a fall. It will, however, be observed that there were more than twice as many of these troops sick with ENT diseases as with mumps, during the first three years of the period. The fall in the incidence of these diseases was comparatively steeper in the last year, when their admissions were about equal to those due to mumps.

Incidence of venereal diseases went up by 39 per cent. in 1943 but got reduced by 56 per cent. in 1944 and by a further 30 per cent. in 1945.

These two years, it should be remembered, were years of very active campaigning on this front and might not have provided easy opportunities of indulgence to the troops. On the whole, venereal diseases contributed to total sickness at the higher rate of 8 per cent. They were next to malaria only in importance from the point of view of incidence. A comparison of figures of the incidence of venereal diseases among NCs(E) in India during the same period, is provided by the following figures:—

Absolute incidence of Venereal Diseases among NCs(E).

Year			In India	On Indo-Burma Front
1942	..	..	62.6	62.4
1943	..	..	76.7	86.8
1944	..	..	80.4	38.0
1945	..	..	69.1	23.6

A comparison of these figures with those in Table 4 shows that a comparable rate existed between them, till 1943, after which the rate on the front was very much lower. In Burma, it was less than half of what it was in India in 1944 and about 1/3rd of the rate in India in 1945.

As was the case with the VCOs and IORs, the highest incidence among the NCs(E) was also from malaria each year. It contributed 43 sick each year, during 1942 and 1943, to every 100 sick among them; 37 such in 1944 and only 13 in 1945. The corresponding absolute rates were 335, 469, 278 and 28 per 1,000 respectively. The fall in rate in 1944 and 1945 is statistically significant. In India, at the same time, this category of troops was registering incidence rates of 234 per 1,000 in 1942; 232 per 1,000 in 1943; 195 per 1,000 in 1944 and 99 per 1,000 in 1945. The comparison provided by the two figures in 1945 is of considerable interest. This huge reduction in malaria rate in 1945 was due to efficient draining schemes much improved personal discipline and various medical prophylactic measures introduced on this front.

Epidemiology of malaria may be studied from the following table in which its monthly incidence over 1943-45 is given on the next page.

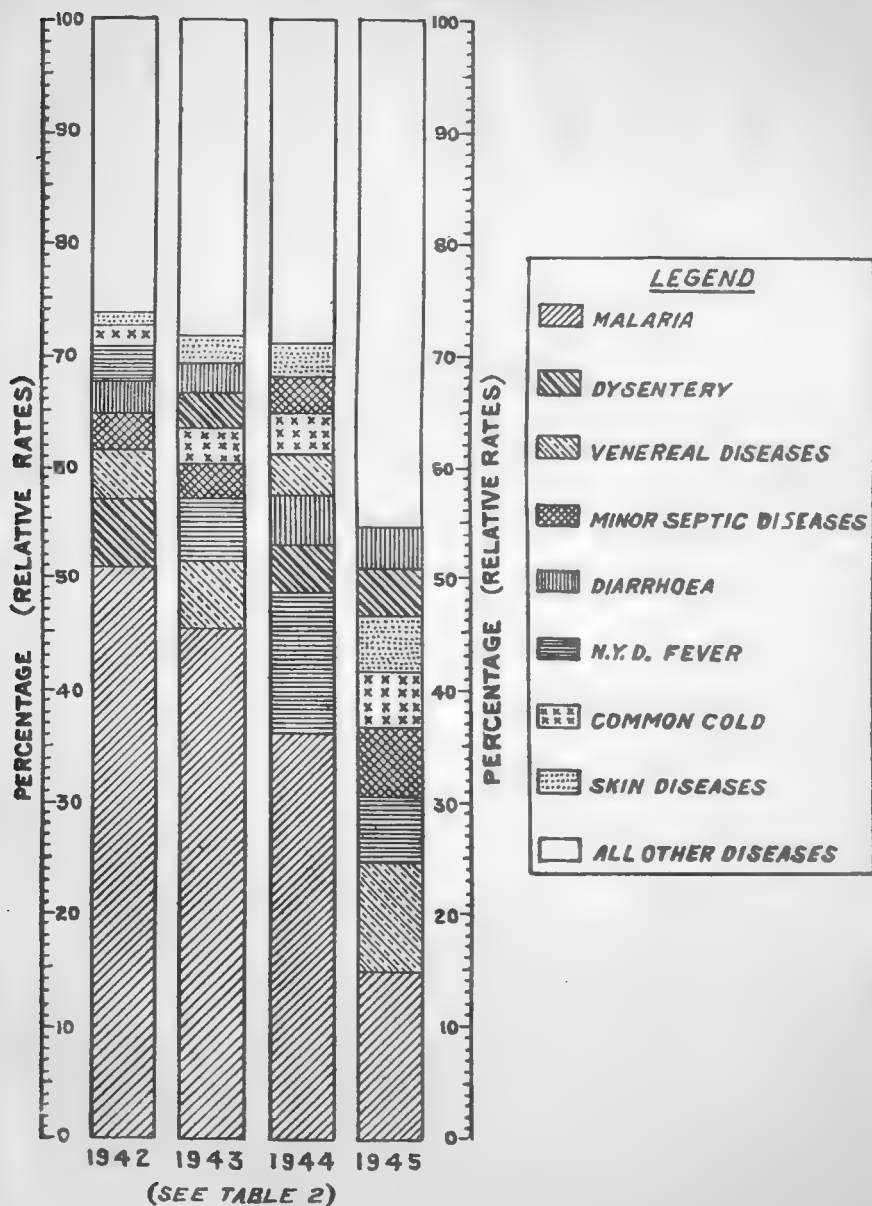
One could see almost three epidemic outbreaks in 1943 (in May, July and October); one in 1944 (in May-June) and two in 1945 (in January and June). The gradual fall in these figures from month to month over the three years can also be observed in this table. The highest rate was 149 per 1,000 in July 1943 and the lowest of about 8 per 1,000 in September 1945. A similar rate (8 per 1,000) was also witnessed in December 1944.

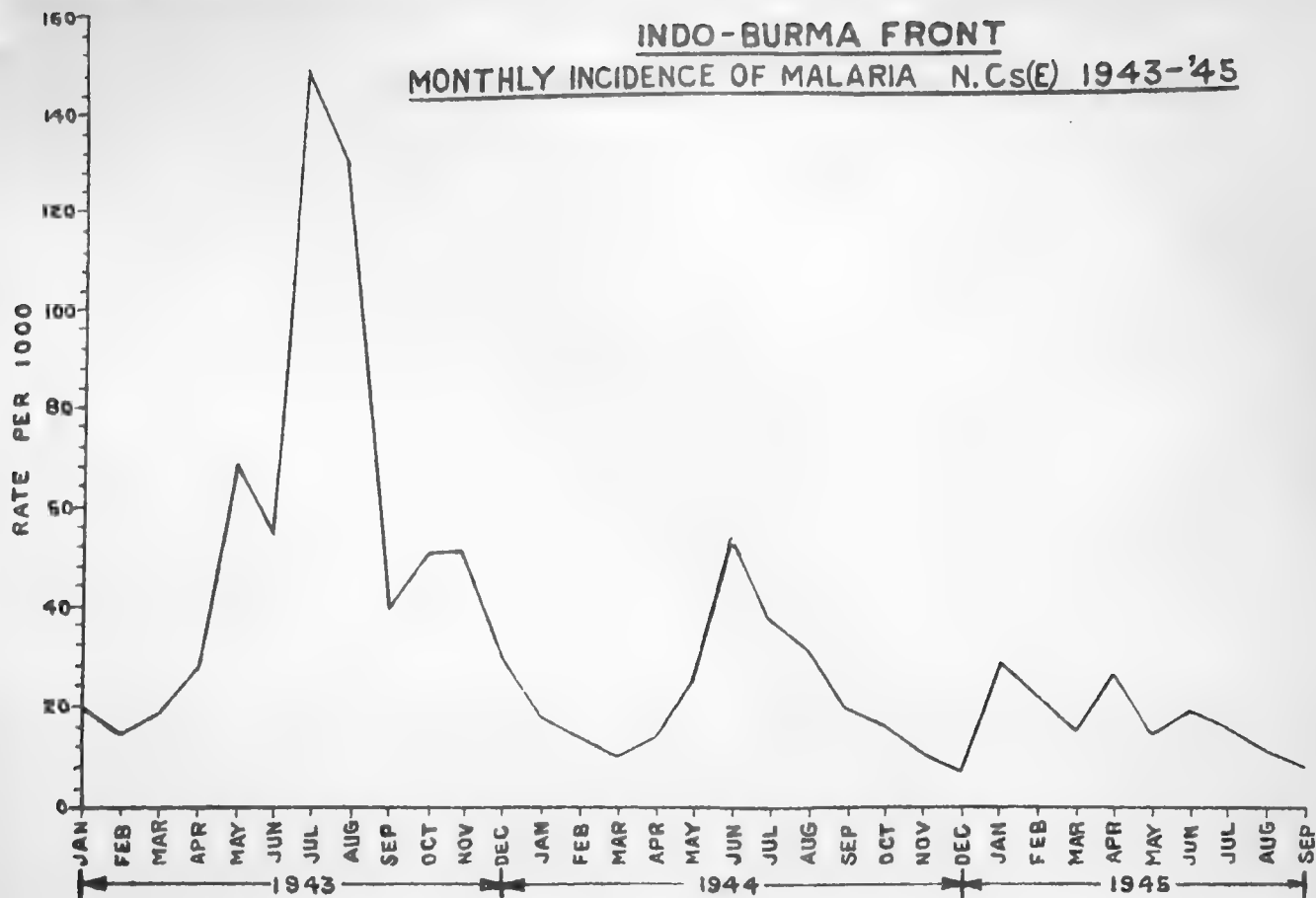
The morbid condition entered as NYD fever caused increasing morbidity among the NCs(E) till 1944. An increase of more than three-fold in its absolute rate, from 21.9 per 1,000 in 1942 to 82.9 per 1,000 in

INDO-BURMA FRONT

RELATIVE MORBIDITY RATES DUE TO IMPORTANT DISEASES

(V.C. OS. & I.O. RS.) 1942-1945





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Incidence of malaria among the NCs(E).

Month	1943		1944		1945	
	Actual Admis-sions	Rate per 1,000	Actual Admis-sions	Rate per 1,000	Actual Admis-sions	Rate per 1,000
January ..	1,299	19·9	2,056	17·8	3,205	28·5
February ..	1,080	14·3	1,543	14·3	2,270	21·7
March ..	1,189	18·9	1,201	10·5	1,755	14·6
April ..	2,291	28·1	1,583	13·8	1,520	26·8
May ..	6,089	70·2	3,263	26·4	1,584	14·4
June ..	5,231	54·5	5,837	53·4	2,092	19·3
July ..	16,160	149·5	4,451	37·6	1,744	16·2
August ..	14,462	130·0	3,474	31·5	1,016	11·1
September ..	4,349	39·0	2,471	20·3	660	8·5
October ..	5,793	51·0	2,204	17·4		
November ..	5,720	52·8	1,325	10·6		
December ..	3,220	29·1	932	7·6		

1944, was registered by it. Simultaneously with a fall in malaria incidence and that of other diseases, NYD fever incidence also fell to about 1/6th of its 1944 rate in 1945. The same trend is indicated by the relevant relative rates also. Its relative incidence among total diseases was highest at 11·15 per cent. in 1944. During the greater part of the period, NYD fever carried a great weight in the hierarchy of diseases from which NCs(E) suffered.

Dysentery comes next to NYD fever. It caused heavy sickness, at 40 per 1,000 in 1942, and 35 per 1,000 in 1943. A reduction of 20 per cent. in its rate was affected during 1944 and of another 75 per cent. in 1945 over the previous year's rate respectively. Relative rates also indicated a falling trend. From 1944, extensive use of sulpha drugs was made possible and a rigorous discipline for preventing the spread of this disease was also enforced. The seasonal epidemicity of dysentery is shown in the following figures of its monthly incidence:—

Incidence of dysentery among the NCs(E).

Month		1943 Rate per 1,000	1944 Rate per 1,000	1945 Rate per 1,000
January ..	..	2·0	1·7	0·8
February ..	..	2·0	1·4	0·7
March ..	..	2·1	2·5	0·8
April ..	..	2·6	3·0	2·4
May ..	..	3·7	3·0	1·1
June ..	..	4·0	3·9	0·8
July ..	..	4·0	2·6	0·7
August ..	..	3·9	3·2	0·4
September ..	..	2·2	2·4	0·4
October ..	..	2·7	1·4	
November ..	..	2·6	0·8	
December ..	..	2·3	0·6	

An increase in the rate of incidence started each year near about April and extended over a period of five months, to the end of August. The low rate during August-September 1945 should be particularly marked because it put the effects of medical effort employed to combat it in clear relief.

Diarrhoea fared more or less similar to dysentery from the point of sickness caused to NCs(E) during the period.

Common cold, minor septic diseases, scabies, eye diseases other than trachoma and skin diseases showed a marked increase in their incidence rate in 1943 over that in 1942, whereafter each of them registered a fall. The fall in the rate from 1944 to 1945, in each case, is very much marked. Reasons for the fall are more or less the same as were advanced in the case of VCOs and IORs.

Hepatitis registered an increasing incidence till 1944, in which year, on comparison, the rate betrays what would amount to be an epidemic. It seems to have been effectively controlled by 1945, when its rate was reduced by about one-half (to 6.0 per 1,000). Influenza incidence fell off at a rapid rate from year to year.

The relative importance each year, of the first nine morbid conditions for every 100 NCs(E) sick from all diseases, is given below:—

Diseases			1942	1943	1944	1945
Malaria	..	..	43	43	37	13
Venereal diseases	..	..	8	8	5	11
NYD fever	..	..	3	5	11	7
Dysentery	..	..	5	3	4	4
Minor septic diseases	..	..	4	3	3	6
Common cold	..	..	2	3	4	6
Diarrhoea	..	..	2	3	3	3
ENT diseases	..	..	2	2	2	2
Scabies	..	..	2	2	2	2
Total	..	..	71	72	71	54

It will be seen from this Table that about 3/4th of total sickness was caused by these nine diseases till 1944. In 1945 they caused only slightly more than half of it. Between them, malaria alone was responsible for 60 per cent. of sickness during each of the years 1942 and 1943, and caused 52 per cent. sickness in 1944 but only 24 per cent. in 1945.

Among the important diseases having absolute rates of less than 10 per mille (or relative rates of less than 1 per cent.), pneumonia, mental diseases, tonsillitis, tuberculosis and trachoma had higher incidence rates than the others. They are being considered here in descending order of importance from the point of view of the incidence. These diseases caused greater sickness than the others among NCs(E). Their incidence, however, did not follow a uniform course. Tuberculosis and pneumonia showed falling annual rates throughout the period. Trachoma and tonsillitis indicated some increase in their

incidence in 1943 but fell thereafter; but the incidence of mental diseases kept on increasing throughout.

Diseases like cholera, enteric group of fevers, smallpox and septic diseases can be termed preventable and should ordinarily show, if at all, very low rates of incidence. This observation is borne out by figures in Table 4, where none of them will be seen to have produced a rate as high as 1 per 1,000. Between them cholera and enteric group of fevers registered falling rates throughout the period; rates for major septic diseases fell continuously after 1943 and those for smallpox fell greatly in 1945.

Among dengue, oriental sore, sandfly fever, heat effects and typhus, none caused any measurable sickness to the NCs(E) taken as a whole. Typhus (scrub), which was dreaded so much by combatant troops on this front, did not cause in actual admissions or absolute rates, comparable sickness among the NCs(E). Its monthly incidence among them is given in the following table:—

Incidence of typhus among the NCs(E).

Month			1943 Rate per 1,000	1944 Rate per 1,000	1945 Rate per 1,000
January	..	..	..	..	0·12
February	..	..	..	..	0·03
March	..	..	..	0·03	0·03
April	..	..	0·05	..	0·05
May	..	..	..	0·02	0·02
June	..	..	0·05	0·03	0·07
July	..	..	0·02	0·04	0·12
August	..	..	0·09	0·02	0·08
September	..	..	0·04	0·04	0·17
October	..	..	0·05	0·20	
November	..	..	0·09	0·18	
December	..	..	0·03	0·10	

It will be seen from a comparison of this table and that for the VCOs and IORs given previously that in no month did NCs(E) suffer any comparable sickness from this disease. It seems, therefore, arguable that typhus was a greater threat to combatant troops (and to some of the non-combatants who went alongwith, or were infected by them) who happened to be posted in a typhus-ridden area.

Observations made with regard to the relative casualty rates of groups of diseases to total admissions due to all causes among the VCOs and IORs, apply to such rates for the NCs(E) also (Table 6). Infective and parasitic diseases caused 61 per cent. of total casualties during 1942; 60 per cent. in 1943; 52 per cent. in 1944 and 39 per cent. in 1945. The difference in the share of war wounds suffered by the NCs(E) is, however, well worth noting. The respective rates were 0·12, 0·10, 0·59 and 0·78 per 1,000.

In respect of average number daily sick and their rate per 1,000, it will be seen from the figures given in the following Table that they showed a gradually falling trend over the period.

Average number daily sick and their rates.

		1943		1944		1945	
		No.	Rate per 1,000	No.	Rate per 1,000	No.	Rate per 1,000
Sickness	..	4,510	41·8	3,158	28·9	81·00	0·82
War wounds	..	10	0·1	41	0·4	1·00	0·01
Total	..	4,520	41·9	3,199	29·3	82·00	0·83

From a comparison of these figures with those of the VCOs and IORs, it can be stated that in absolute terms non-combatant troops did not suffer at a very much lower rate than the combatant troops.

CONCLUSION

During the first three years, about 75 per cent. of all sickness among the NCs(E) was caused by the following nine diseases, given in descending order of importance; malaria, venereal diseases, NYD fever, dysentery, minor septic diseases, common cold, diarrhoea, ENT diseases and scabies. Malaria alone, among all diseases, was responsible for 43 per cent. of admissions during each of the years 1942 and 1943, but for 37 per cent. in 1944 and only 13 per cent. during 1945.

Average number of NCs(E) daily *sick* was highest at 4,510 in 1943 and lowest at 81 in 1945.

TABLE 4

Admissions to Hospitals—Annual rates per 1,000 strength: NCs(E) SEAC (Indo-Burma Front).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0·5	1·1	0·4	0·08
Cholera ..	0·8	0·7	0·13	0·04
Dengue ..	1·2	0·2	0·5	0·22
Diphtheria ..	..	0·1	0·04	0·03
Dysentery ..	39·8	34·8	28·3	7·53
Enteric group of fevers ..	0·9	0·5	0·1	0·11
Hepatitis ..	0·05	0·13	10·2	5·89
Malaria ..	335·3	468·8	278·1	27·96
Major septic diseases ..	0·1	1·7	0·6	0·45
Minor septic diseases ..	27·9	34·5	22·6	11·77
Mumps ..	7·4	10·4	7·3	4·93
Oriental sore ..	0·1	0·03	0·1	..
Pediculosis ..	..	0·05	..	..
Sandfly fever ..	0·0	0·4	0·1	0·05
Scabies ..	16·9	24·4	14·4	4·85
Smallpox ..	0·1	0·9	1·9	0·29

TABLE 4—(Contd.).

Diseases	1942	1943	1944	1945
TB lungs	1·6	1·4	0·9	0·93
TB others	0·4	0·3	0·2	
Trachoma	0·7	2·2	1·2	
Typhus fever .. ..	..	0·6	0·8	0·65
VD fresh	58·6	84·1	34·8	23·63
VD relapse	3·8	2·7	3·2	
Total	496·97	671·29	405·24	90·05
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri .. ..	..	0·1	..	0·01
Scurvy .. ..	..	0·2	..	..
Total .. ..	..	0·31	..	0·01
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	1·74
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	1·2	3·5	3·4	4·79
(5) <i>Diseases of the Nervous system and Sense organs</i>				
ENT diseases ..	18·3	19·9	17·8	4·81
Eye diseases other than trachoma	9·4	15·9	9·2	5·60
Total	27·74	35·83	26·95	10·42
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0·6	1·5	0·3	0·11
Other circulatory diseases	4·4	3·0	3·0	0·89
Total	5·11	4·50	3·24	1·00
(7) <i>Diseases of the Respiratory system</i>				
Common cold ..	14·8	34·3	28·9	11·56
Tonsillitis	2·3	3·0	1·9	1·25
Influenza	10·3	2·6	0·9	0·14
Pneumonia	4·9	..	4·3	2·29
Other respiratory diseases	26·6	39·5	31·2	10·98
Total	58·9	79·4	67·2	26·22
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea	18·1	28·6	20·8	7·08
Other digestive diseases ..	18·3	37·6	28·6	8·84
Total	36·4	66·2	49·4	15·92
(9) <i>Diseases of the Skin and Cellular tissues</i>				
Skin diseases ..	10·9	20·9	17·6	8·81
Aerolar tissue ..	2·6	..	..	..
Total	13·5	20·9	17·6	8·81

TABLE 4—(Contd.).

Diseases	1942	1943	1944	1945
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever	21·9	57·8	82·9	15·02
PUO	0·5	5·1	2·1	0·19
Total	21·69	62·9	85·00	15·21
(11) <i>All other diseases</i>	114·6	137·98	84·84	34·96
(12) <i>All diseases</i>	776·17	1,082·82	742·87	209·14
(13) <i>Accidents, poisoning and violence (non-battle injuries)</i>				
Burns and scalds .. ..	..	..	1·9	1·86
Other local injuries ..	33·4	36·9	28·1	17·87
Total	33·37	36·92	30·0	19·73
(14) <i>Accidents, poisoning and violence (battle-injuries)</i>				
Injuries caused by blast ..	..	..	0·01	0·10
Bomb wounds	0·0	0·4	1·66	0·56
Gunshot wounds	0·9	0·7	1·73	0·69
Shell wounds	0·0	0·1	1·16	0·45
Total	0·97	1·18	4·56	1·80
(15) <i>All cases</i>	810·51	1,120·92	777·51	230·69
(16) <i>Average constantly sick, daily-rate per 1,000</i>				
(i) Sickness .. ..	..	41·81	28·90	0·82
(ii) War wounds .. ..	..	0·09	0·37	0·01
(iii) Total .. ..	..	41·90	29·27	0·83

TABLE 5

Relative morbidity rates: NCs(E) SEAC (Indo-Burma Front).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0·07	0·10	0·05	0·04
Cholera	0·11	0·06	0·02	0·02
Dengue	0·15	0·02	0·07	0·11
Diphtheria .. ..	..	0·00	0·01	0·01
Dysentery	5·14	3·22	3·81	3·60
Enteric group of fevers ..	0·12	0·05	0·01	0·05
Hepatitis	0·07	0·12	1·41	2·82
Malaria	43·20	43·29	37·42	13·37
Major septic diseases ..	0·02	0·15	0·09	0·22
Minor septic diseases ..	3·60	3·18	3·03	5·63
Mumps	0·95	0·96	0·98	2·36
Oriental sore	0·02	0·00	0·01	..
Pediculosis .. ..	..	0·00	..	..
Poliomyelitis .. ..	..	..	0·00	..

TABLE 5—(Contd.)

Diseases		1942	1943	1944	1945
Sandfly fever ..	..	0.00	0.04	0.01	0.02
Scabies ..	..	2.17	2.26	1.93	2.32
Smallpox ..	..	0.02	0.08	0.16	0.14
TB lungs ..	..	0.21	0.13	0.12	0.30
TB others ..	..	0.05	0.03	0.02	0.16
Trachoma ..	..	0.09	0.20	0.16	0.27
Typhus fever ..	..	..	0.06	0.10	0.31
VD fresh ..	..	7.55	7.77	4.69	11.30
VD relapse ..	..	0.49	0.24	0.44	
Total ..	..	64.03	61.99	54.54	43.05
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>					
Beri beri ..	..	..	0.01	..	0.00
Scurvy ..	..	..	0.02	..	..
Total ..	..	..	0.03	..	0.00
(3) <i>Diseases of the Blood and Blood forming organs</i>					
Nutritional and other anaemia ..					
..	..	..	..	..	0.75
(4) <i>Mental, Psychoneurotic, and Personality disorders</i>					
Mental diseases ..	..	0.15	0.33	0.46	2.29
(5) <i>Diseases of the Nervous system and Sense organs</i>					
ENT diseases ..	..	2.36	1.84	2.39	2.30
Eye diseases other than trachoma ..	..	1.21	1.47	1.24	2.68
Total ..	..	3.57	3.31	3.63	4.98
(6) <i>Diseases of the Circulatory system</i>					
Rheumatic fever ..	..	0.08	0.14	0.04	0.05
Other circulatory diseases ..	..	0.57	0.28	0.40	0.42
Total ..	..	0.66	0.41	0.44	0.48
(7) <i>Diseases of the Respiratory system</i>					
Common cold ..	..	1.90	3.17	3.90	5.53
Tonsillitis ..	..	0.29	0.24	0.26	0.60
Influenza ..	..	1.32	0.24	0.11	0.07
Pneumonia ..	..	0.63	..	0.58	1.09
Other respiratory diseases ..	..	3.42	3.65	4.20	5.25
Total ..	..	7.58	7.33	9.05	12.54
(8) <i>Diseases of the Digestive system</i>					
Diarrhoea ..	..	2.34	2.64	2.81	3.38
Other digestive diseases ..	..	2.36	3.48	3.85	4.23
Total ..	..	4.69	6.12	6.66	7.61
(9) <i>Diseases of the Skin and Cellular tissues</i>					
Skin diseases ..	..	1.40	1.93	2.37	4.21

TABLE 5—(Contd.).

Diseases		1942	1943	1944	1945
	Acrolar tissue ..	0·34			
	Total ..	1·74	1·93	2·37	4·21
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	2·70	5·33	11·15	7·18
	PUO ..	0·08	0·47	0·28	0·09
	Total ..	2·78	5·80	11·43	7·27
(11)	<i>All other diseases</i> ..	14·78	12·72	11·43	16·71
(12)	<i>All diseases</i> ..	100·00	100·00	100·00	100·00

TABLE 6

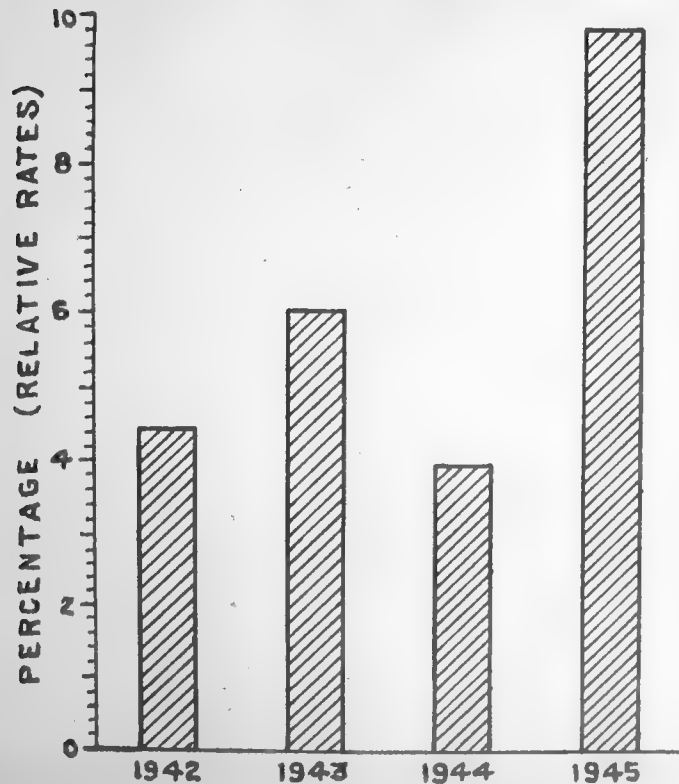
Relative casualty rates: NCs(E): SEAC (Indo-Burma Front).

Specialist Groups	1942	1943	1944	1945
(1) Infective and parasitic diseases ..	61·32	59·88	52·11	39·04
(2) Allergic, endocrine system, metabolic and nutritional diseases ..	..	0·03	..	..
(3) Diseases of the blood and blood forming organs ..	..	..	..	0·75
(4) Mental, psychoneurotic, and personality disorders ..	0·15	0·32	0·44	2·08
(5) Diseases of the nervous system and sense organs ..	3·42	3·20	3·47	4·52
(6) Diseases of the circulatory system ..	0·63	0·40	0·42	0·43
(7) Diseases of the respiratory system ..	7·26	7·08	8·64	11·37
(8) Diseases of the digestive system ..	4·49	5·91	6·36	6·90
(9) Diseases of the skin and cellular tissues ..	1·67	1·86	2·26	3·82
(10) Symptoms, senility and ill-defined conditions ..	2·66	5·61	10·92	6·59
(11) All other diseases ..	14·16	12·31	10·92	15·16
(12) All diseases ..	95·76	96·60	95·54	90·66
(13) All battle and non-battle injuries ..	4·24	3·39	4·46	9·34
(14) All cases ..	100·00	100·00	100·00	100·00

INDO-BURMA FRONT

PERCENTAGE SHARE OF V.D. IN ALL DISEASES

(V.C.Os. & I.O.Rs.) 1942-45

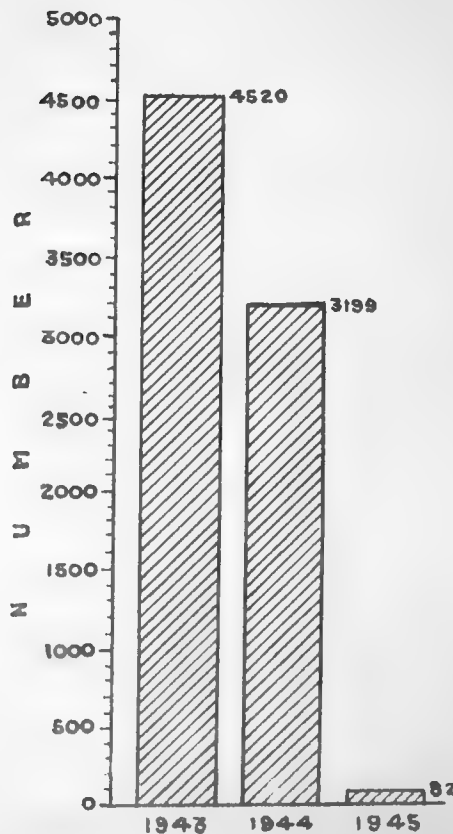


(SEE TABLE 2)

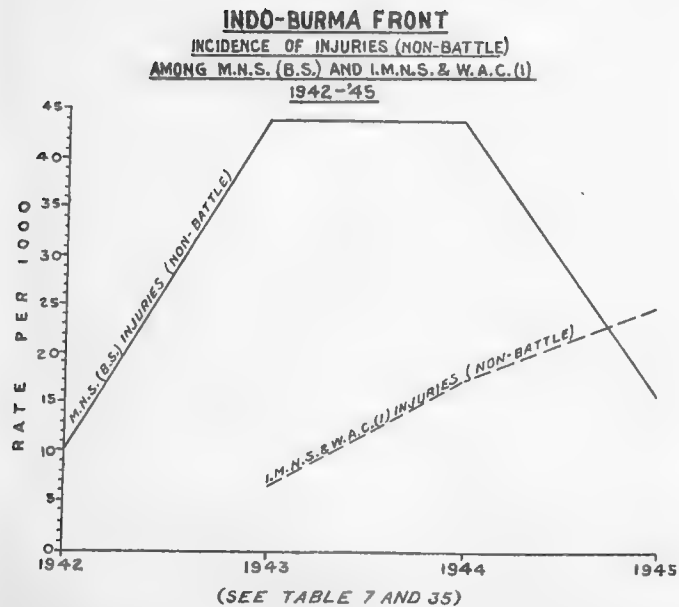
INDO-BURMA FRONT

AVERAGE NUMBER-DAILY UNDER TREATMENT

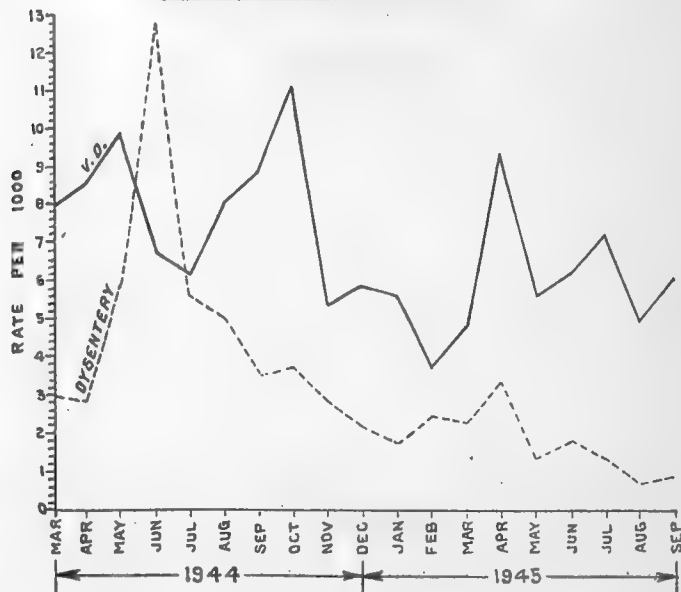
N.Cs.(E) 1943-45



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INDO-BURMA FRONT
MONTHLY INCIDENCE OF V.D. AND DYSENTERY (W.A.O.Rs)
MARCH 1944 - SEPTEMBER 1945

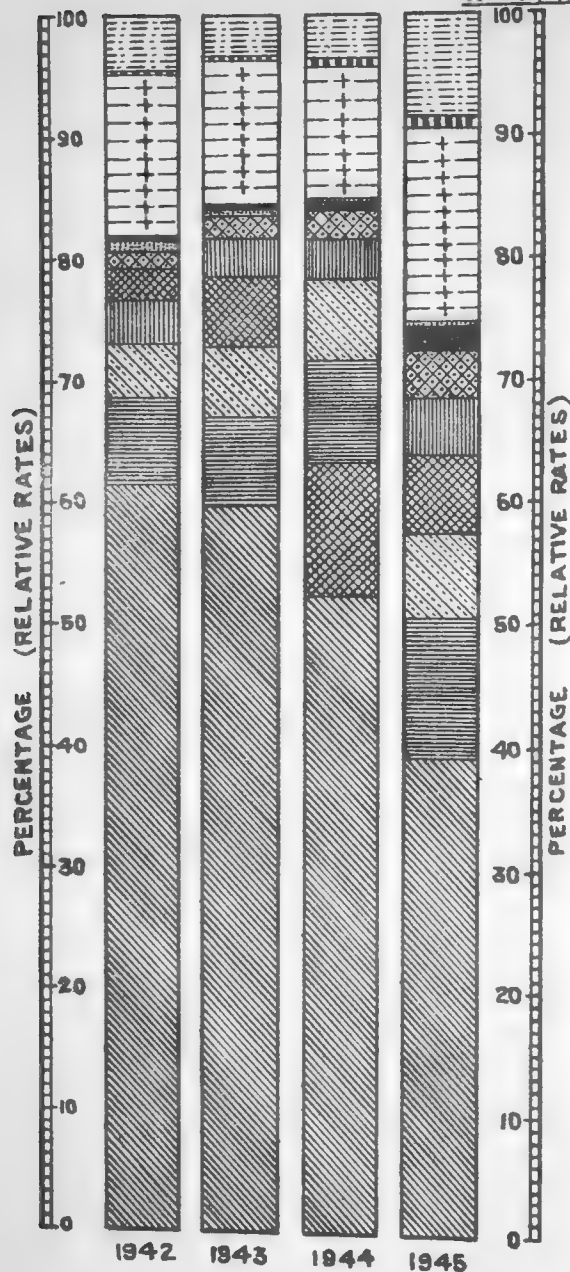


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INDO-BURMA FRONT

RELATIVE CASUALTY RATES DUE TO GROUPS OF DISEASES

N.C.S.(E) 1942-45



LEGEND

-  INFECTIVE AND PARASITIC DISEASES.
-  DISEASES OF THE RESPIRATORY SYSTEM.
-  DISEASES OF THE DIGESTIVE SYSTEM.
-  DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS.
-  SYMPTOMS, SENILITY AND ILL-DEFINED CONDITIONS.
-  DISEASES OF THE SKIN AND CELLULAR TISSUE.
-  DISEASES OF THE CIRCULATORY SYSTEM.
-  MENTAL, PSYCHONEUROTIC AND PERSONALITY DISORDERS
-  ALL OTHER DISEASES.
-  ALL BATTLE AND NON-BATTLE INJURIES

(SEE TABLE 6)

Section IV

WOMENS' AUXILIARY CORPS (INDIA) AND INDIAN
MILITARY NURSING SERVICE

In Tables 7 and 8 are given rates of absolute and relative morbidity for WAC(I) and IMNS on the Indo-Burma Front for 1942-45. It should be remembered that, against the numbers of other Indian male troops, comparatively a few of these categories were posted on this front. It will be seen from these tables that sickness among the WAC(I) and IMNS was of a very low order. From a perusal of the absolute rates, in Table 7, it becomes at once clear that, although these persons on the whole suffered more from organic disorders, yet malaria inflicted heavier casualties on them than any other single cause till 1944. The immensity of the task created by malaria on this front could only be imagined when it is remembered that troops like the WAC(I) and IMNS registered the high rate of 135.45 per 1,000 in 1944. This means that about 14 out of every 100 of them were down with malaria in that year. During 1945, however, malaria incidence was brought down to about one seventh of what it was in 1944. Actually, in this year malaria registered a rate which brought it down to the fourth position in the group of diseases responsible for sickness among the WAC(I) and IMNS. Its relative rate (Table 8) was reduced to 6.19 per cent. in this year from 22.3 per cent. in 1944. Another notable feature of Table 7 is the comparatively high absolute rate for all diseases in 1944 as against those in other years. With the exceptions of cerebrospinal fever, minor septic diseases, scabies, tonsillitis, pneumonia and PUO, all the other diseases had very high rates in 1944 as against those for other years. If the relative contribution made each year to the total of all the four years was evaluated, it is interesting to note that in no case the contribution of 1944 to total sickness is less than 50 per cent. In some diseases like enteric group of fevers, mumps, tuberculosis and venereal diseases any sickness that was caused, was in 1944 only. Among the rest of them, the share of diarrhoea was 81 per cent. When diseases as a whole are taken into account, the contribution of 1944 to total sickness was about 40 per cent.

The Table given on next page shows the division of these diseases in three categories, in each year; (i) those that had an absolute rate of ten or higher than ten per mille; (ii) those that had for their absolute rates a figure between five and ten per mille; and (iii) others having rates less than five per mille. This table brings out clearly the importance which various diseases occupied during these four years for the WAC(I) and IMNS. The high incidence of digestive diseases, respiratory diseases, tonsillitis, common cold, malaria, dysentery and diarrhoea and ENT diseases, etc. is notable. With the exception of malaria, dysentery and diarrhoea, incidence of other diseases here is very different from that of the VCOs & IORs and NCs (E).

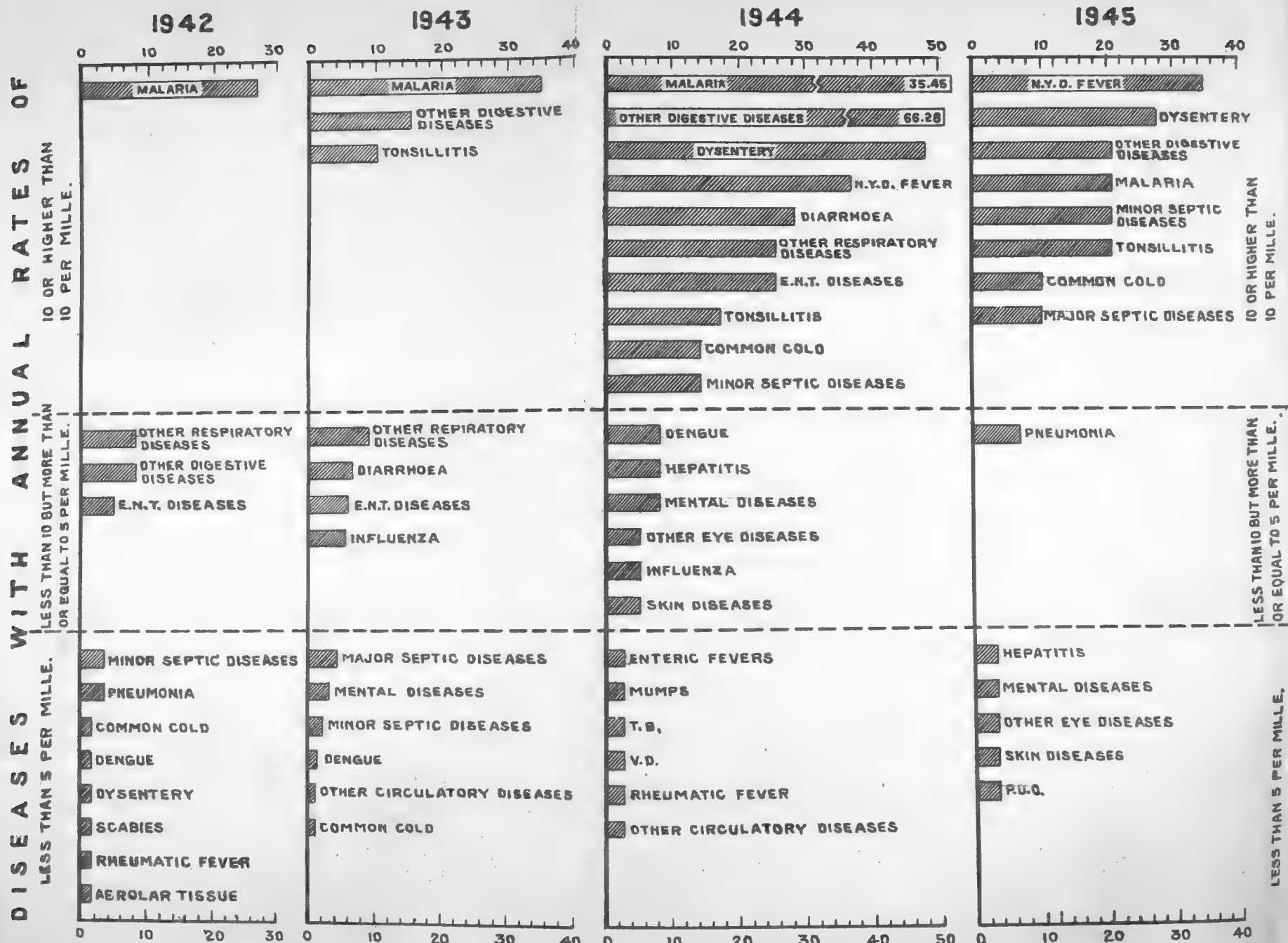
The fact that venereal diseases did not exist among the WAC(I) and IMNS, except to a small extent in 1944, is not without interest. There were only three sufferers in every 1,000 of them from venereal diseases during 1944, with an insignificant relative rate of 0.5 per cent.

	Sl. No.	1942	1943	1944	1945
I. Diseases with a rate of 10 or higher than 10 per mille	1	Malaria	Malaria Other digestive diseases Tonsillitis	Malaria	NYD fever
	2			Other digestive diseases	Dysentery
	3			Dysentery	Other digestive diseases
	4			NYD fever	Malaria
	5			Diarrhoea	Minor septic diseases
	6			Other respiratory diseases	Tonsillitis
	7			ENT diseases	Common cold
	8			Tonsillitis	Major septic diseases
	9			Common cold	
	10			Minor septic diseases	
II. Diseases with a rate equal to or more than 5 but less than 10 per mille	1	Other respiratory diseases	Other respiratory diseases	Dengue	Pneumonia
	2	Other digestive diseases	Diarrhoea	Hepatitis	
	3	ENT diseases	ENT diseases	Mental diseases	
	4		Influenza	Other eye diseases	
	5			Influenza	
	6			Skin diseases	
III. A rate of less than 5 per mille	1	Common cold	Common cold	Enteric group of fevers	Hepatitis
	2	Dengue	Dengue	Mumps	Mental diseases
	3	Dysentery	Major septic diseases	Tuberculosis	Other eye diseases
	4	Minor septic diseases	Minor septic diseases	Veneral diseases	Skin diseases
	5	Scabies	Mental diseases	Rheumatic fever	PUO
	6	Rheumatic fever	Other circulatory diseases	Other circulatory diseases	
	7	Pneumonia			
	8	Aerolar tissues			

INDO-BURMA FRONT

DISEASE MORBIDITY IN THREE CLASSES (W.A.C.(I) AND I.M.N.S.)

1942-1945



(SEE TABLE 7)

There were practically no casualties due to enemy action among the WAC(I) and IMNS. On the whole, there was one casualty against every 1,000 WAC(I) and IMNS in 1942; 1.7 in 1943; slightly more than 6 in 1944 and about 4 in 1945. It can be stated that WAC(I) and IMNS kept very good health in the earlier years of the war in Burma. During the years 1944 and 1945, when brisk campaigning was the order of the day, they also got caught by various epidemics prevalent on this front along with the other troops and did in consequence register heavier rates.

A look on Table 9, in which relative casualty rates are given, will also bear out what has been stated already. Infective and parasitic diseases caused 38 per cent. of all casualties in 1942; 32 per cent. in 1943; 37 per cent. in 1944 and only 23 per cent. in 1945. Respective percentages in the first three years for other troops, it will be remembered, were almost double of these rates. The share of all diseases to total casualties in this case happens to be higher in each year than in the case of VCOs & IORs and NCs(E), which shows that WAC(I) and IMNS had consistently high rate of sickness from diseases relatively to casualties. On an average, there were about 33 WAC(I) and IMNS daily sick during 1943; six during 1944 and less than one during 1945.

CONCLUSION

The highest admission rates for most of the diseases from which they suffered were registered in 1944 for the WAC(I) and IMNS. The most important single cause was malaria, but consistently high rates were also registered particularly by the diseases of the circulatory, respiratory and digestive systems.

The average number daily sick was 33 in 1943; 6 during 1944 and less than 1 during 1945.

TABLE 7
Admissions to Hospitals—Annual rates per 1,000 strength: WAC(I) and IMNS: SEAC (Indo-Burma Front).

Diseases	1942			1943			1944			1945		
	WAC(I)	IMNS	Total	WAC(I)	IMNS	Total	WAC(I)	IMNS	Total	WAC(I)	IMNS	Total
(1) <i>Infective and Parasitic diseases</i>												
Cerebrospinal fever ..	..	..	..	..	2.6	0.63	..	..	..	..	..	..
Cholera ..	..	2.9	1.67	..	7.8	1.90	9.6	8.2	8.64	..	..	..
Diphtheria ..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery ..	4.0	..	1.67	5.9	31.0	12.05	48.1	49.4	48.99	60.00	10.86	28.16
Enteric group of fevers ..	..	..	..	..	..	..	19.2	4.1	2.88	10.00	..	3.52
Hepatitis ..	..	2.9	1.67	..	101.0	35.51	192.3	111.1	135.45	10.00	27.17	21.13
Malaria ..	28.0	25.7	26.67	14.3	0.8	4.44	28.8	4.1	2.88	20.00	5.43	10.56
Major septic diseases ..	..	..	..	..	15.5	2.54	..	8.2	14.41	40.00	10.87	21.13
Minor septic diseases ..	..	5.7	3.33	3.4	..	..	..	4.1	2.88	..	..	..
Mumps ..	..	..	..	..	..	..	..	..	..	..	..	..
Scabies ..	..	..	1.67	..	..	..	..	..	2.88	..	..	..
TB lungs ..	..	..	..	..	..	..	9.6	4.1	2.88	..	..	..
VD fresh ..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	36.0	37.1	36.73	24.4	158.0	57.07	317.3	193.4	230.55	140.00	54.35	84.51
(2) <i>Mental, Psychoneurotic and Personality disorders</i>												
Mental diseases ..	..	..	..	..	..	..	..	..	..	..	..	..
(3) <i>Diseases of the Nervous system and Sense organs</i>												
ENT diseases ..	..	..	..	2.5	5.2	3.17	9.6	8.3	8.64	..	5.43	3.52
Eye diseases other than trachoma ..	..	8.5	5.00	3.4	15.5	6.34	38.5	20.6	25.94	..	..	..
Total ..	..	8.5	5.00	3.4	15.5	6.34	38.5	28.8	31.70	..	5.43	3.52
(4) <i>Diseases of the Circulatory system</i>												
Rheumatic fever ..	..	2.9	1.67	0.8	2.6	0.63	..	4.1	2.88	..	..	..
Other circulatory diseases ..	..	2.9	1.67	0.8	5.2	1.27	..	8.2	5.76	..	..	..
Total ..	..	2.9	1.67	0.8	5.2	1.27	..	8.2	5.76	..	..	..
(5) <i>Diseases of the Respiratory system</i>												
Common cold ..	..	2.9	1.67	0.8	2.6	1.27	38.5	4.1	14.41	20.00	5.43	10.56
Tonsillitis ..	..	..	..	5.9	23.3	10.15	98.5	8.2	17.29	20.00	21.74	21.13
Influenza ..	..	..	..	1.7	18.1	5.71	19.2	..	5.76	10.00	5.43	7.04
Pneumonia ..	..	5.7	3.33	4.2	25.9	9.51	9.6	32.9	25.94	40.00	5.43	17.61
Other respiratory diseases ..	8.0	8.6	8.33	12.6	69.9	26.63	105.8	45.2	63.40	90.00	38.04	56.33
Total ..	8.0	17.2	13.34	12.6	69.9	26.63	105.8	45.2	63.40	90.00	38.04	56.33

TABLE 7—(Contd.).

Diseases	1942			1943			1944			1945		
	WAC(I)	IMNS	Total	WAC(I)	IMNS	Total	WAC(I)	IMNS	Total	WAC(I)	IMNS	Total
(6) Diseases of the Digestive system												
Diarrhoea	16.0	2.9	8.33	2.5	20.7	6.97	48.1	20.6	28.82	..	..	..
Other digestive diseases	..	..	8.33	5.9	44.0	15.22	76.9	61.7	66.28	40.00	10.87	21.13
Total	16.0	2.9	8.33	8.4	64.7	22.19	125.0	82.3	95.10	40.00	10.87	21.13
(7) Diseases of the Skin and Cellular tissues												
Skin diseases	..	..	..	..	5.2	1.27	9.6	4.1	5.76	10.00	..	3.52
Aerolar tissue	..	..	1.67	..	..	..	..	..	..	..	..	..
Total	..	2.9	1.67	..	5.2	1.27	9.6	4.1	5.76	10.00	..	3.52
(8) Symptoms, Sentility and Ill-defined conditions												
NYD fever	..	..	..	..	2.6	0.63	67.3	24.6	37.46	90.00	5.43	35.21
PUO ..	..	..	..	..	2.6	0.63	67.3	24.6	37.46	90.00	5.43	35.21
Total	..	..	..	..	5.2	1.27	134.6	49.2	74.92	180.00	10.87	70.42
(9) All other diseases	16.0	40.0	30.00	27.7	121.7	50.73	211.5	94.7	129.68	200.00	92.39	130.28
(10) All diseases	76.0	111.4	96.67	79.8	448.2	169.94	884.6	490.0	608.07	570.00	217.39	341.55
(11) Accidents, poisoning and violence (non-battle injuries)												
Burns and scalds	..	..	..	2.5	18.1	6.34	9.6	20.6	17.29	50.00	10.87	24.65
Other local injuries	..	..	..	2.5	18.1	6.34	9.6	20.6	17.29	50.00	10.87	24.65
Total	..	..	..	..	..	..	..	..	..	..	..	..
(12) Accidents, poisoning and violence (battle injuries)												
Injuries caused by blast	..	..	..	..	..	..	..	..	..	..	..	..
Bomb wounds	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	..	..	..	..	..	..	..	..	..	..	..
(13) All cases	76.0	111.4	96.67	82.3	466.3	176.28	894.2	510.3	625.36	630.00	228.26	369.72
(14) Average daily sick, per 1,000 strength												
(i) Sickness	..	..	..	3.30	14.16	5.95	27.86	11.89	16.69	..	..	..
(ii) War wounds	..	..	..	..	..	..	..	..	..	..	..	..
(iii) Total	..	..	..	3.30	14.16	5.95	27.86	11.89	16.69	..	..	..

TABLE 8
Relative morbidity rates: WAC(I) and IMNS: SEAC (Indo-Burma Front).

Diseases	1942			1943			1944			1945		
	WAC(I)	IMNS	Total	WAC(I)	IMNS	Total	WAC(I)	IMNS	Total	WAC(I)	IMNS	Total
(1) <i>Infective and Parasitic diseases</i>												
Cerebrospinal fever ..	..	..	..	..	0.58	0.37	..	..	..	..	..	..
Cholera ..	..	2.56	1.72	..	1.73	1.12	..	1.68	1.42	..	..	..
Dengue ..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria ..	5.26	..	1.72	7.37	6.94	7.09	5.44	10.08	8.05	10.52	5.00	8.24
Dysentery ..	..	..	..	..	..	..	1.09	0.84	0.47	..	..	..
Enteric group of fevers ..	..	2.56	1.72	..	..	..	2.17	0.84	1.42	1.75	..	1.03
Hepatitis ..	..	23.08	27.59	17.89	22.54	20.89	21.74	0.84	0.47	3.51	12.50	6.19
Malaria ..	36.84	..	..	1.05	3.47	2.61	..	0.84	2.37	7.02	2.50	3.09
Major septic diseases ..	..	5.13	3.45	4.21	..	1.49	3.26	0.84	0.47	..	5.00	6.19
Minor septic diseases ..	..	..	..	..	..	..	..	..	..	..	..	..
Mumps ..	5.26	..	1.72	..	..	..	..	..	..	..	..	..
Scabies ..	..	..	..	..	..	..	..	0.84	0.47	..	..	..
TB lungs ..	..	..	..	..	..	..	1.09	..	0.47	..	..	..
VD fresh ..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	47.37	33.34	37.93	30.53	35.26	33.58	35.87	39.50	37.91	24.56	25.00	24.74
(2) <i>Mental, Psychoneurotic and Personality disorders</i>												
Mental diseases ..	..	..	..	3.16	1.16	1.87	1.09	1.68	1.42	..	2.50	1.03
(3) <i>Diseases of the Nervous system and Sense organs</i>												
ENT diseases ..	..	..	..	..	..	..	..	..	..	..	..	..
Eye diseases other than trachoma ..	..	7.69	5.17	4.21	3.47	3.73	4.35	4.20	4.26	..	..	..
Total ..	..	7.69	5.17	4.21	3.47	3.73	4.35	4.20	4.26	..	..	..
(4) <i>Diseases of the Circulatory system</i>												
Rheumatic fever ..	..	2.56	1.72	..	0.58	0.37	..	0.84	0.47	..	2.50	1.03
Other circulatory diseases ..	..	..	..	1.05	0.58	0.75	..	0.84	0.47	..	2.50	1.03
Total ..	..	2.56	1.72	1.05	1.16	1.12	..	1.68	0.95	..	..	..
(5) <i>Diseases of the Respiratory system</i>												
Common cold ..	..	2.56	1.72	1.05	0.58	0.75	4.35	0.84	2.37	3.51	2.50	3.09
Tonsillitis ..	..	..	..	7.37	5.20	5.97	4.35	1.68	2.84	3.51	10.00	6.19
Influenza ..	..	..	..	2.10	4.05	3.96	2.17	..	0.95	..	..	..
Pneumonia ..	..	5.13	3.45	5.26	5.78	5.60	1.09	6.72	4.26	1.75	2.50	2.06
Other respiratory diseases ..	10.53	7.69	8.62	15.79	15.61	15.68	11.96	9.26	10.43	7.02	2.50	5.15
Total ..	10.53	15.38	13.79	15.79	15.61	15.68	11.96	9.26	10.43	15.79	17.50	16.49

TABLE—8 (Contd.).

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TABLE 9

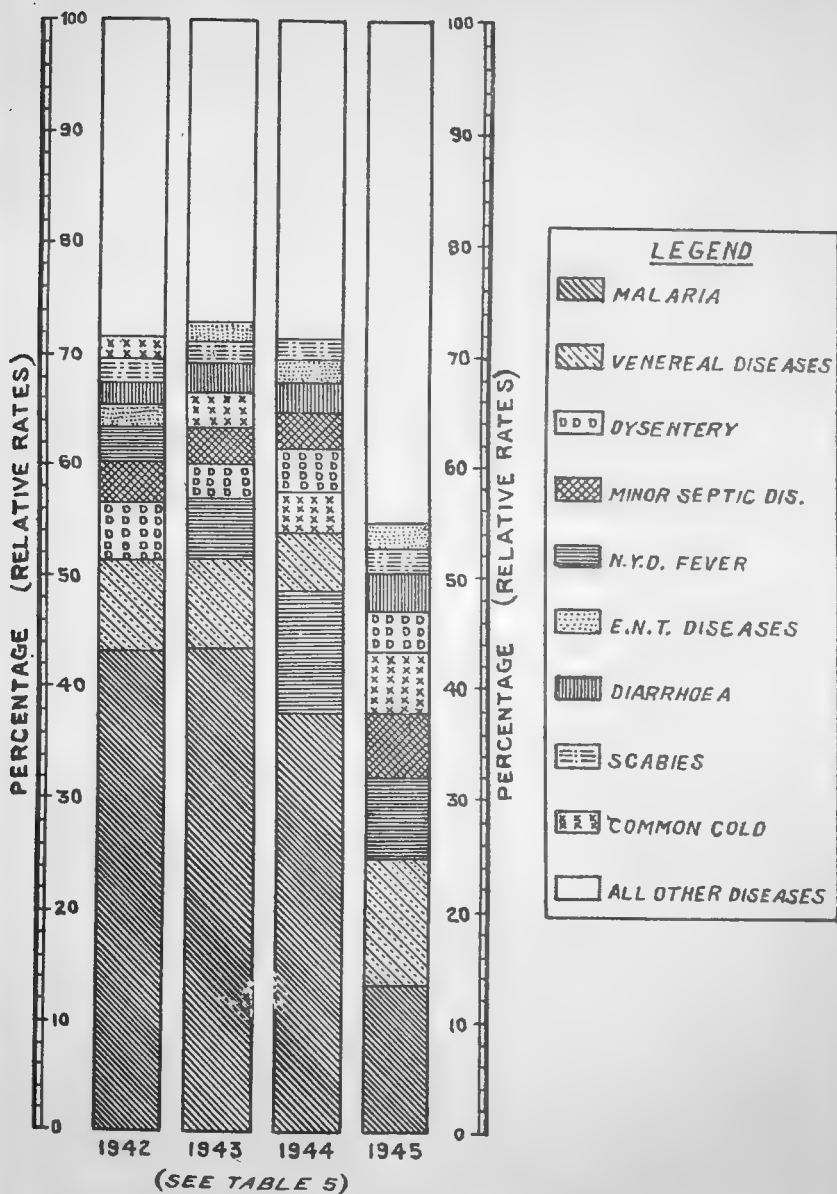
Relative morbidity rates: WAC(I) and IMNS: SEAC (Indo-Burma Front).

Specialist groups	1942	1943	1944	1945
(1) Infective and parasitic diseases ..	37.93	32.37	36.86	22.85
(2) Mental, psychoneurotic and personality disorders ..	..	1.80	1.38	0.95
(3) Diseases of the nervous system and sense organs ..	5.17	3.60	5.07	0.95
(4) Diseases of the circulatory system ..	1.72	1.08	0.92	5.71
(5) Diseases of the respiratory system ..	13.79	15.11	10.14	15.24
(6) Diseases of the digestive system ..	8.62	12.59	15.21	5.71
(7) Diseases of the skin and cellular tissues ..	1.72	0.72	0.92	0.95
(8) Symptoms, senility and ill-defined conditions ..	..	0.36	5.99	10.48
(9) All other diseases ..	31.03	28.78	20.74	35.24
(10) All diseases ..	100.00	96.40	97.23	92.38
(11) All battle and non-battle injuries ..	..	3.60	2.76	7.62
(12) All cases ..	100.00	100.00	100.00	100.00

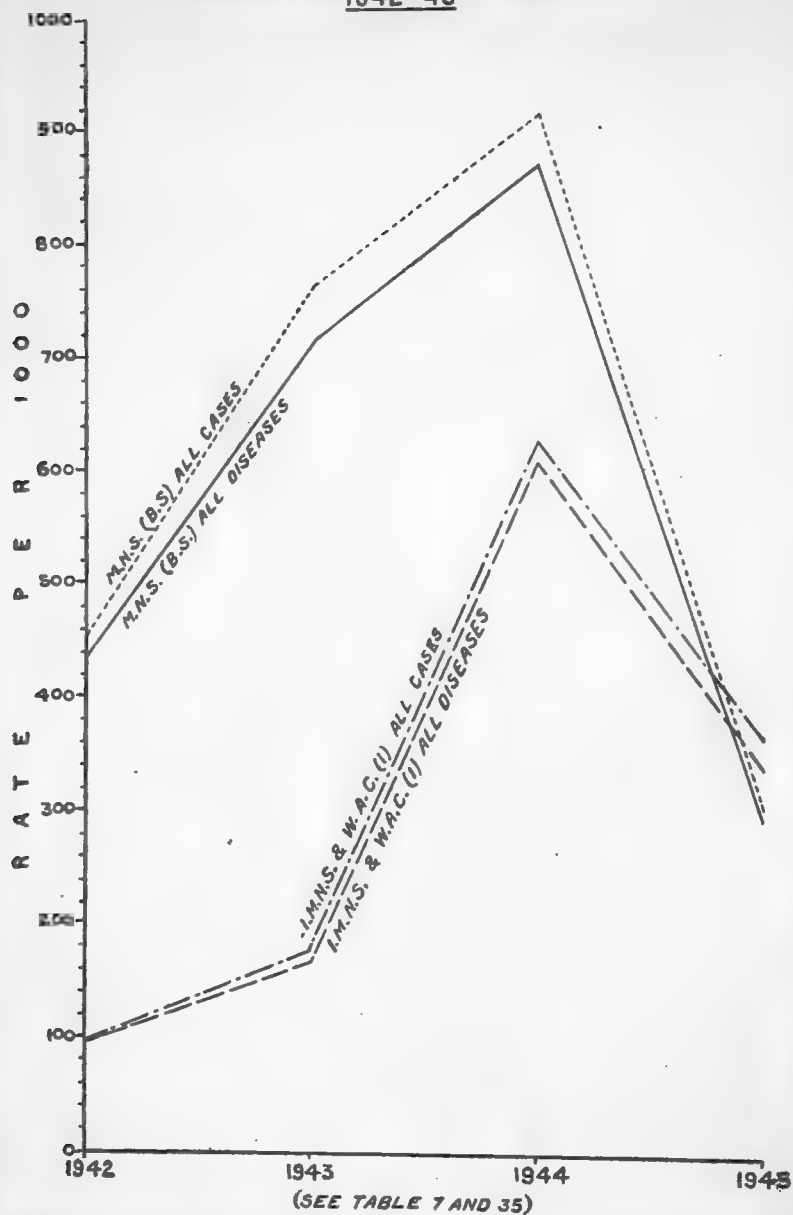
INDO-BURMA FRONT

RELATIVE MORBIDITY RATES DUE TO IMPORTANT DISEASES

N.C.S.(E) 1942-'45



INDO-BURMA FRONT
INCIDENCE OF 'ALL CASES' AND 'ALL DISEASES'
AMONG M.N.S. (B.S.) AND L.M.N.S. AND W.A.C. (I)
1942-'45



Section V

KING'S COMMISSIONED INDIAN OFFICERS AND INDIAN COMMISSIONED OFFICERS

It has not been possible to find out correctly average figures of periodical strength of IKCOs and ICOs from the available returns. In such circumstances it is best to study their history on the basis of relative rates only, which eliminate errors with respect to strength or deficiencies of rendition from the sample estimates. Relative rates will, however, measure each year, the proportionate contribution of a particular disease to total sickness. Relevant figures, on the lines of tables for the other categories of personnel given previously in this chapter, are given in Table 10. It will be seen that no figures are available for 1945. The analysis will perforce have to remain confined to a period of three years only. It will be well to bear in mind that comparatively a few Indians were serving as officers at this time.

In 1942, these few officers suffered 295 casualties, out of which 275 were due to sickness, 3 (injuries) due to enemy action, and 17 (injuries) due to non-enemy action. As between various types of casualties, for every casualty due to enemy action there were 6 from non-enemy action and 96 from sickness.

Out of a total of 818 casualties during 1943; 754 were from sickness, 5 due to enemy action and 59 due to non-enemy action. This means that for every casualty due to enemy action there were 12 due to non-enemy action and 151 due to sickness. They show that in 1943, sickness was at a high tide and officers suffered very much more thus than from actual engagements with the enemy.

In 1944, for a total of 1,015 casualties, 917 were due to sickness, 48 due to non-enemy action and 50 due to enemy action. This was the year in which battle of the Imphal plain was successfully fought and the enemy was pushed away across the Chindwin river. This is reflected in the proportions given below. For every casualty suffered by our officers due to enemy action in 1944, less than one was injury sustained due to non-enemy action and only 18 due to sickness.

The fact that malaria was the disease causing the heaviest sickness among officers and caused the greatest concern every year to medical authorities of the Command emerges from Table 10 also. Its relative importance, however, declined during the period. In 1942, it caused 42 per cent. of all sickness among Indian officers, but only 30 per cent. and 25 per cent. in 1943 and 1944 respectively. In 1944, malaria alone was responsible for one fourth of all sickness among officers. It is assumed that further reduction was effected in the share of malaria during 1945.

The climatic and environmental conditions of the terrain took a heavy toll in terms of sickness from Indian officers also. Typhus caused 2.4 per cent. of all sickness during 1943. This was the highest ratio for typhus in the three years. The dysentery epidemic of June-July

1944, referred to earlier, showed higher relative rates of dysentery and diarrhoea in this year as against the corresponding rates during 1942 and 1943. Skin diseases, hepatitis and scabies also registered a higher ratio of sickness in this year than in previous years. Among the other diseases which might be taken as relatively important for the Indian officers were venereal diseases, eye and ear diseases, tonsillitis and NYD fever.

It would not be quite correct to compare crude relative rates of morbidity of Indian officers with those for other Indian troops, as their age composition was unlikely to be the same. For lack of reliable average strength data for Indian officers, the question of comparing their absolute rates of sickness with those of other troops does not arise. It is for this reason again that when considering total morbidity among Indian troops on this front figures for Indian officers will not be included.

As in the case of VCOs, IORs and NCs(E), infective and parasitic diseases caused among Indian officers 56 per cent. of all casualties in 1942; 44 per cent in 1943 and 40 per cent. in 1944. The fall in the latter two years was due perhaps to a fall in relative rate for malaria each year. Injuries due to enemy action caused 1 per cent. of all casualties in 1942 and 1943 but 5 per cent. of all casualties in 1944.

TABLE 10

Relative morbidity rates and relative casualty rates; ICOs and IKCOs; SEAC (Indo-Burma Front)

Diseases	1942		1943		1944	
	Relative Rate	Relative Casualty Rate	Relative Rate	Relative Casualty Rate	Relative Rate	Relative Casualty Rate
(1) <i>Infective and Parasitic diseases</i>						
Cerebrospinal fever	..		0.13		..	
Cholera	..		0.13		..	
Dengue	.. 0.73		1.46		0.54	
Dysentery	.. 6.19		5.70		8.18	
Enteric group of fevers	.. 0.36		..		0.44	
Hepatitis	.. 0.73		..		2.73	
Malaria	.. 42.18		30.24		25.41	
Major septic diseases	.. ..		0.40		0.44	
Minor septic diseases	.. 6.54		4.64		2.40	
Mumps	.. ..		0.26		0.22	
Oriental sore	.. ..		..		0.11	
Poliomyelitis	.. ..		..		0.11	
Sandfly fever	.. 0.36		0.26		0.22	

TABLE 10—(Contd.).

Diseases	1942		1943		1944	
	Relative Rate	Relative Casualty Rate	Relative Rate	Relative Casualty Rate	Relative Rate	Relative Casualty Rate
Scabies ..	..		..		0.44	
Smallpox ..	..		0.53		..	
Tuberculosis ..	0.36		0.13		0.11	
Trachoma ..	..		..		0.33	
Typhus fever ..	..		2.39		0.44	
Venereal diseases	2.90		3.98		2.40	
Total ..	60.36	56.27	48.28	44.50	44.50	40.20
(2) <i>Mental, Psychoneurotic and Personality disorders</i>						
Mental diseases ..	0.36	0.34	1.99	1.83	1.53	1.38
(3) <i>Diseases of the Nervous system and Sense organs</i>						
ENT diseases ..	2.91		3.45		2.62	
Eye diseases other than trachoma	2.18		..		0.54	
Total ..	5.09	4.75	3.45	3.18	3.16	2.86
(4) <i>Diseases of the Circulatory system</i>						
Rheumatic fever ..	..		0.13		0.65	
Other circulatory diseases ..	0.36		1.46		0.54	
Total ..	0.36	0.34	1.59	1.47	1.20	1.08
(5) <i>Diseases of the Respiratory system</i>						
Common cold ..	0.36		1.06		1.74	
Tonsillitis ..	1.82		2.39		1.85	
Influenza ..	..		1.06		0.22	
Pneumonia ..	0.36		..		..
Other respiratory diseases ..	2.18		4.11		2.73	
Total ..	4.72	4.41	8.62	7.95	6.54	5.91
(6) <i>Diseases of the Digestive system</i>						
Diarrhoea ..	2.18		3.18		4.69	
Other digestive diseases ..	5.45		6.63		7.63	
Total ..	7.64	7.12	9.81	9.05	12.32	11.13
(7) <i>Diseases of the Skin and Cellular tissues</i>						
Skin diseases ..	1.45	1.36	1.33	1.22	3.05	2.76
(8) <i>Symptoms, Senility and Ill-defined conditions</i>						
NYD fever ..	..		2.92		8.07	

TABLE 10—(Contd.).

Diseases	1942		1943		1944	
	Relative Rate	Relative Casualty Rate	Relative Rate	Relative Casualty Rate	Relative Rate	Relative Casualty Rate
PUO ..	..		1.33		0.87	
Total ..	..		4.24	3.91	8.94	8.08
(9) <i>All other diseases</i> ..	20.00	18.64	20.69	19.07	18.76	16.95
(10) <i>All diseases</i> ..	100.00	93.22	100.00	92.18	100.00	90.34
(11) <i>Accidents, poisoning and violence (non-battle injuries)</i>						
Burns and scalds					1	
Other local injuries	17		59		47	
Total ..	17	5.76	59	7.21	48	4.73
(12) <i>Accidents, poisoning and violence (battle injuries)</i>						
Injuries caused by blast ..					1	
Bomb wounds ..			1		4	
Gunshot wounds	3		3		35	
Shell wounds ..			1		10	
Total ..	3	1.02	5	0.61	50	4.93
(13) <i>All cases</i> ..	295	100.00	818	100.00	1015	100.00

NOTE: Items against serial numbers 11, 12 and 13 under "relative rate" column are actual numbers.

Section VI

SEX DIFFERENTIALS

In comparing sex differentials for different diseases, Indian troops on this front have been classified in two parts, male and female. Incidence among different categories of these troops have already been considered. For the purpose of the present discussion the male Indian troops will consist of the VCOs & IORs and NCs(E). Strictly speaking the IKCOs and ICOs should also be included in them. As has already been mentioned, this has not been possible for lack of their accurate strength figures. Female Indian troops will be taken to consist of WAC(I) and IMNS on this front.

In Tables 11 to 13 are given incidence rates from various diseases for the male Indian troops. The corresponding figures for the WAC(I) and IMNS are in Tables 7 to 9. Their crude differentials based on relative and absolute rates are shown, annually, in Tables 14 to 17, disease-wise. These differentials have been summarised in Tables 18 and 19. All the diseases that showed differential rates, indicating higher female rates, are shown in Table 18. Table 19 is comprised of differential rates for diseases which had lower female incidence rates or higher male incidence rates.

The most prominent disease which showed consistently higher incidence among females than among males during this period was tonsillitis. It caused between 2 to 19 times as high a rate of sickness in the former as that in the latter in 1943; between 6 to 9 times of male sickness in 1944 and 8 to 9 times of male sickness in 1945. Dengue caused 6 to 37 times more sickness among the WAC(I) and IMNS than among the male troops during 1943 and 21 to 28 times in 1944. The difference in 1944 is notable. Influenza, which was responsible for 2 to 13 times of male sickness among females in 1943, caused 9 to 14 times as much sickness in 1944. Major septic diseases, which were 1 to 8 times of male sickness in 1943, caused 10 to 11 times more sickness among females during 1945. Mental diseases were twice to thrice more severe in the female forces in 1944 only. Hepatitis was 3 to 25 times more frequent among them in 1942.

Malaria (Table 19) was persistently more frequent among the male troops than in the female forces. It was 2 to 16 times more prevalent among them in 1942; 2 to 14 times more frequent in 1943; and about twice more widespread in 1944 and 1945. Common cold was also responsible for higher sickness among males than females throughout. Its lowest proportion of higher male incidence was 2 times of female rates in 1944 and 1945, but the highest figures lay between 4 to 27 times of female incidence in 1943. Skin diseases caused 3 to 19 times more illness among males than among females in 1943; between 3 to 4 times in 1944 and about 5 times as much in 1945. Among male troops, dysentery was 3 times more prevalent in 1942 and 5 times more in 1943. Eye diseases other than trachoma caused about twice more sickness in 1944 and 3 times more in 1945. Among the remaining

diseases no uniform behaviour is traceable. For instance, pneumonia, which caused higher sickness among males in 1942, was responsible for a much higher rate of incidence among females in 1945. Diarrhoea caused 4 times more sickness among males in 1943, but about even incidence in 1944 between the two categories.

From the foregoing discussion the conclusion can be drawn that, generally, WAC(I) and IMNS suffered at a greater rate than the male Indian troops, on this front, from tonsillitis, influenza, dengue, major septic diseases, mental diseases and the like. The male Indian troops, however, suffered more from malaria, common cold, dysentery, skin diseases, eye diseases other than trachoma and minor septic diseases. These differences may be attributable also to the differences in their respective places and nature of work, etc. on this front.

It will have been observed from the above that the comparisons between the relative and absolute rates of incidence of male and female Indian troops have been based on crude figures. The conclusions derived therefrom about differences between the two categories of personnel have some administrative uses in so far as they indicate proportionate contribution of a disease to all diseases and causes; and higher or lower hospital admissions due to a particular disease between the male or female troops. They do not at all show how far these differences are due to innate biological differences, to different age composition and age incidences, or to different administrative circumstances, or to different localities and the like. To eliminate all these variables, standardisation of all figures with respect to age, locality, etc. is necessary which will also help to draw firm biological conclusions about the observed differences being due to difference in sex only. The relevant data are, however, not available.

CONCLUSION

Tonsillitis, dengue, influenza, major septic diseases and mental diseases were prevalent among the WAC(I) and IMNS at greater rates than among the male Indian troops, for a major portion of the period under consideration.

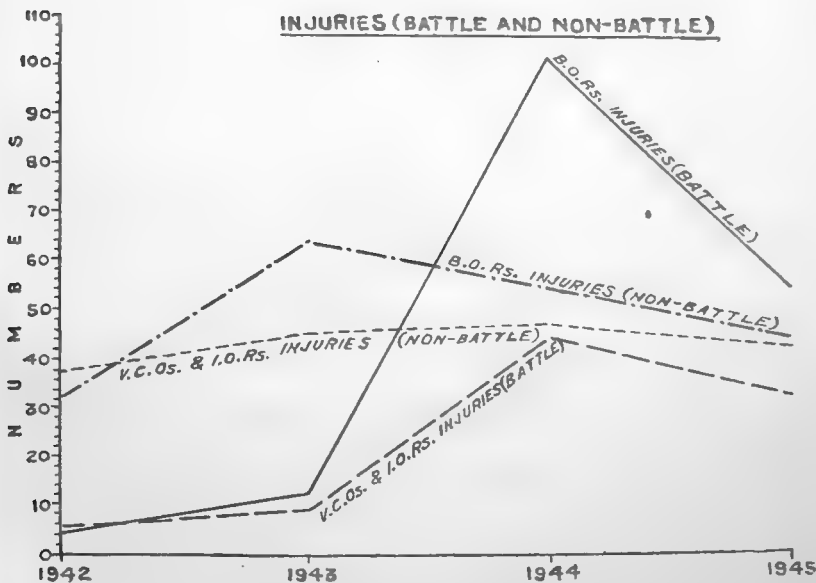
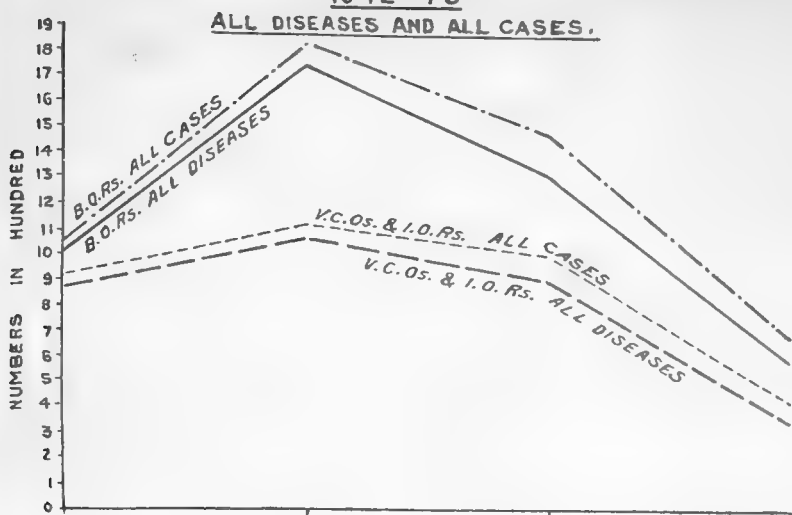
Higher male rates, on the other hand, were obtained from malaria, common cold, dysentery, skin diseases, eye diseases and minor septic diseases.

In Tables 20 to 22 are set out admissions to hospitals, relative morbidity rates and relative casualty rates for all Indian troops in Burma from 1942-45. The discussion of these figures would amount to a repetition of what has already been said in the case of VCOs and IORs. Their value to administrative medicine is, however, great for which reason they are appended herewith.

INDO-BURMA FRONT

INCIDENCE (RATE PER 1000) OF 'ALL CASES', 'ALL DISEASES'
AND INJURIES (BATTLE AND NON-BATTLE) B.O.Rs. AND V.C.Os. & I.O.Rs.

1942-'45



(SEE TABLE 1 AND 32)

INDO-BURMA FRONT

DIFFERENTIALS WITH RESPECT TO ABSOLUTE INCIDENCE

OF SOME OF THE LESS IMPORTANT DISEASES

EXCESS N.C.E. RATES  EXCESS V.C.O. & I.O.R. RATES 

1945

DISEASES WITH EXCESS
N.C.E. RATES

DISEASES WITH EXCESS
V.C.O. & I.O.R. RATES

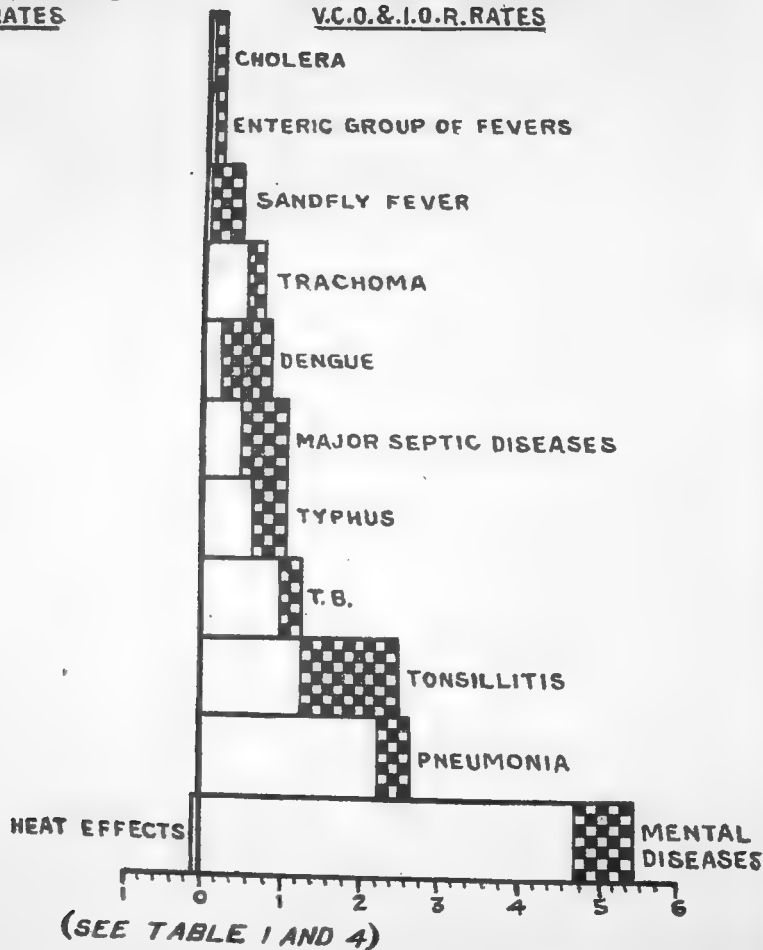


TABLE 11

Admissions to Hospitals—Annual rates per 1,000 strength: VCOs & IORs and NCs(E): SEAC (Indo-Burma Front).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.45	0.69	0.22	0.08
Cholera	0.52	0.71	0.15	0.16
Dengue	2.20	0.32	0.42	0.74
Diphtheria .. ..	..	0.13	0.04	0.06
Dysentery	49.62	34.00	36.99	12.34
Enteric group of fevers ..	0.57	0.53	0.16	0.15
Hepatitis	0.57	1.89	11.78	9.76
Malaria	419.97	480.77	315.83	45.65
Major septic diseases ..	0.07	3.35	0.75	0.96
Minor septic diseases ..	28.27	35.30	27.71	18.76
Mumps	10.00	6.16	5.31	4.73
Oriental sore	0.20	0.18	0.05	0.02
Pediculosis	0.01	0.04	..	..
Plague .. ..	..	0.00	..	..
Poliomyelitis	0.01	0.01	0.00	0.00
Sandfly fever	0.10	0.36	0.08	0.41
Scabies	16.17	26.72	21.11	8.34
Smallpox	0.17	0.64	0.72	0.30
TB lungs	1.57	1.27	0.93	0.80
TB others	0.55	0.26	0.25	0.44
Trachoma	0.96	1.96	1.35	0.75
Typhus fever	0.22	0.95	1.77	1.00
VD fresh	42.92	69.01	32.85	31.84
VD relapse	2.01	2.77	3.85	
Total	577.14	668.03	462.35	137.32
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri	0.01	0.04	0.01	0.01
Scurvy	0.11	0.25	0.01	0.04
Total	0.13	0.30	0.02	0.05
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	2.75
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	1.42	3.10	4.28	5.33
(5) <i>Diseases of the Nervous system and Sense organs</i>				
ENT diseases ..	15.69	19.31	17.69	8.86
Eye diseases other than trachoma	9.45	17.22	11.94	8.88
Total	25.14	36.53	29.63	17.74

TABLE 11—(Contd.).

Diseases		1942	1943	1944	1945
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	0·60	1·41	0·28	0·19
	Other circulatory diseases ..	4·60	3·57	4·28	1·71
	Total ..	5·20	4·98	4·56	1·89
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	14·61	34·51	31·93	16·43
	Tonsillitis ..	2·82	3·34	2·72	2·26
	Influenza ..	11·35	2·69	0·62	0·39
	Pneumonia ..	3·87	..	2·82	2·63
	Other respiratory diseases ..	22·86	32·35	25·64	14·47
	Total ..	55·51	72·89	63·73	36·18
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	25·38	28·06	34·78	12·17
	Other digestive diseases ..	21·27	35·65	34·78	14·98
	Total ..	46·65	63·71	69·56	27·15
(9)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases ..	12·03	24·10	24·36	15·63
	Aerolar tissues ..	0·64	..	..	..
	Total ..	12·68	24·10	24·36	15·63
(10)	<i>Symptoms, senility and Ill-defined conditions</i>				
	NYD fever ..	24·84	59·70	105·12	19·58
	PUO ..	3·29	9·92	2·19	0·27
	Total ..	28·13	69·62	107·31	19·86
(11)	<i>All other diseases</i> ..	100·61	132·84	102·60	51·68
(12)	<i>All diseases</i> ..	852·61	1,076·11	868·39	315·58
(13)	<i>Accidents, poisoning and violence (non-battle injuries)</i>				
	Burns and scalds ..	..	..	2·24	2·91
	Other local injuries ..	36·74	43·14	41·13	34·67
	Total ..	36·74	43·14	43·37	37·58
(14)	<i>Accidents, poisoning and violence (battle injuries)</i>				
	Injuries caused by blast ..	..	..	0·31	0·09
	Bomb wounds ..	0·05	2·38	8·93	6·79
	Gunshot wounds ..	4·02	3·79	16·11	12·98
	Shell wounds ..	0·41	1·21	9·02	5·64
	Total ..	4·47	7·38	34·38	25·50
(15)	<i>All cases</i> ..	893·83	1,126·63	946·14	378·66

TABLE 12

Relative morbidity rates: VCOs & IORs and NCs(E): SEAC (Indo-Burma Front).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.05	0.06	0.03	0.03
Cholera	0.06	0.07	0.02	0.05
Dengue	0.26	0.03	0.05	0.23
Diphtheria .. ..	..	0.01	0.00	0.02
Dysentery	5.82	3.16	4.26	3.91
Enteric group of fevers ..	0.07	0.05	0.02	0.05
Hepatitis	0.07	0.17	1.36	3.09
Malaria	49.26	44.68	36.37	14.46
Major septic diseases ..	0.01	0.31	0.09	0.30
Minor septic diseases ..	3.31	3.28	3.19	5.94
Mumps	1.17	0.57	0.61	1.50
Oriental sore	0.02	0.02	0.00	0.01
Pediculosis	0.00	0.00	..	..
Plague .. ..	..	0.00	..	..
Poliomyelitis	0.00	0.00	0.00	0.00
Sandfly fever	0.01	0.03	0.01	0.13
Scabies	1.90	2.48	2.43	2.64
Smallpox	0.02	0.06	0.08	0.10
TB lungs	0.18	0.12	0.11	0.25
TB others	0.06	0.02	0.03	0.14
Trachoma	0.11	0.18	0.16	0.24
Typhus fever	0.03	0.09	0.20	0.32
VD fresh	5.03	6.41	3.78	10.09
VD relapse	0.24	0.26	0.44	
Total	67.69	62.07	53.24	43.51
(2) <i>Allergic, Endocrine system, Metabolic, and Nutritional diseases</i>				
Beri beri	0.00	0.00	0.00	0.00
Scurvy	0.01	0.02	0.00	0.01
Total	0.01	0.03	0.00	0.01
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0.87
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	0.17	0.29	0.49	1.69
(5) <i>Diseases of the Nervous system and Sense organs</i>				
ENT diseases	1.84	1.79	2.04	2.81
Eye diseases other than trachoma	1.11	1.60	1.37	2.81
Total	2.95	3.39	3.41	5.62

TABLE 12—(Contd.).

Diseases		1942	1943	1944	1945
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	0·07	0·13	0·03	0·06
	Other circulatory diseases ..	0·54	0·33	0·49	0·54
	Total ..	0·61	0·46	0·52	0·60
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	1·71	3·21	3·68	5·21
	Tonsillitis ..	0·33	0·31	0·31	0·71
	Influenza ..	1·33	0·25	0·07	0·12
	Pneumonia ..	0·45	..	0·32	0·83
	Other respiratory diseases ..	2·68	3·01	2·95	4·58
	Total ..	6·51	6·78	7·34	11·47
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	2·98	2·61	4·01	3·86
	Other digestive diseases ..	2·49	3·31	4·00	4·75
	Total ..	5·47	5·92	8·01	8·60
(9)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases ..	1·41	2·24	2·80	4·95
	Aerolar tissues ..	0·07	..	..	..
	Total ..	1·49	2·24	2·80	4·95
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	2·91	5·55	12·11	6·20
	PUO ..	0·38	0·92	0·25	0·08
	Total ..	3·29	6·47	12·36	6·29
(11)	<i>All other diseases</i> ..	11·80	12·34	11·81	16·37
(12)	<i>All diseases</i> ..	100·00	100·00	100·00	100·00

TABLE 13

Relative casualty rates: VCOs & IORs and NCs(E): SEAC (Indo-Burma Front).

Specialist Groups	1942	1943	1944	1945
(1) Infective and parasitic diseases	64·57	59·29	48·87	36·26
(2) Allergic, endocrine system, metabolic and nutritional diseases	0·01	0·03	0·00	0·01
(3) Diseases of the blood and blood forming organs ..	..	..	..	0·73
(4) Mental, psychoneurotic and personality disorders	0·16	0·27	0·45	1·41
(5) Diseases of the nervous system and sense organs ..	2·81	3·24	3·13	4·68
(6) Diseases of the circulatory system	0·58	0·44	0·48	0·50
(7) Diseases of the respiratory system	6·21	6·45	6·73	9·55
(8) Diseases of the digestive system	5·22	5·65	7·35	7·17
(9) Diseases of the skin and cellular tissues ..	1·42	2·14	2·57	4·13
(10) Symptoms, senility and ill-defined conditions ..	3·15	6·18	11·34	5·24
(11) All other diseases ..	11·26	11·79	10·84	13·65
(12) All diseases ..	95·39	95·52	91·79	83·34
(13) All battle injuries ..	0·50	0·65	3·63	6·74
(14) All non-battle injuries ..	4·11	3·83	4·58	9·92
(15) All cases	100·00	100·00	100·00	100·00

TABLE 14

Sex differentials based on Admissions to Hospitals and Relative morbidity rates VCOs, IORs and NCs(E), and WAC(I) and IMNS: SEAC (Indo-Burma Front)—1942.

Diseases	Relative morbidity rates			Absolute morbidity rates		
	WAC(I) and IMNS	Indian male troops	Differ- ential	WAC(I) and IMNS	Indian male troops	Differ- ential
Common cold ..	1.72	1.71	1.01	1.67	14.61	0.11
Dysentery ..	1.72	5.82	0.30	1.67	49.62	0.03
Hepatitis ..	1.72	0.07	24.57	1.67	0.57	2.93
Malaria ..	27.59	49.26	0.56	26.67	419.97	0.06
Minor septic diseases	3.45	3.31	1.04	3.33	28.27	0.12
Scabies ..	1.72	1.90	0.91	1.67	16.17	0.10
ENT diseases ..	5.17	1.84	2.81	5.00	15.69	0.33
Dengue ..	1.72	0.26	6.62	1.67	2.20	0.76
Pneumonia ..	3.45	0.45	7.67	3.33	3.87	0.86

TABLE 15

Sex differentials based on Admissions to Hospitals and Relative morbidity rates: VCOs, IORs and NCs(E), and WAC(I) and IMNS: SEAC (Indo-Burma Front)—1943.

Diseases	Relative morbidity rates			Absolute morbidity rates		
	WAC(I) and IMNS	Indian male troops	Differ- ential	WAC(I) and IMNS	Indian male troops	Differ- ential
Common cold ..	0.75	3.21	0.23	1.27	34.51	0.03
Dysentery ..	7.09	3.16	2.24	12.05	34.00	0.35
Malaria ..	20.89	44.68	0.47	35.51	480.77	0.07
Minor septic diseases	1.49	3.28	0.45	2.54	35.30	0.07
Mental diseases ..	1.87	0.29	6.45	3.17	3.10	1.02
ENT diseases ..	3.73	1.79	2.08	6.34	19.31	0.33
Influenza ..	3.36	0.25	13.44	5.71	2.69	2.12
Diarrhoea ..	4.10	2.61	1.57	6.97	28.06	0.25
Skin diseases ..	0.75	2.24	0.33	1.27	24.10	0.05
Tonsillitis ..	5.97	0.31	19.26	10.15	3.34	3.04
Dengue ..	1.12	0.03	37.33	1.90	0.32	5.94
Major septic diseases	2.61	0.31	8.42	4.44	3.35	1.33
PUO ..	0.37	0.92	0.40	0.63	9.92	0.06

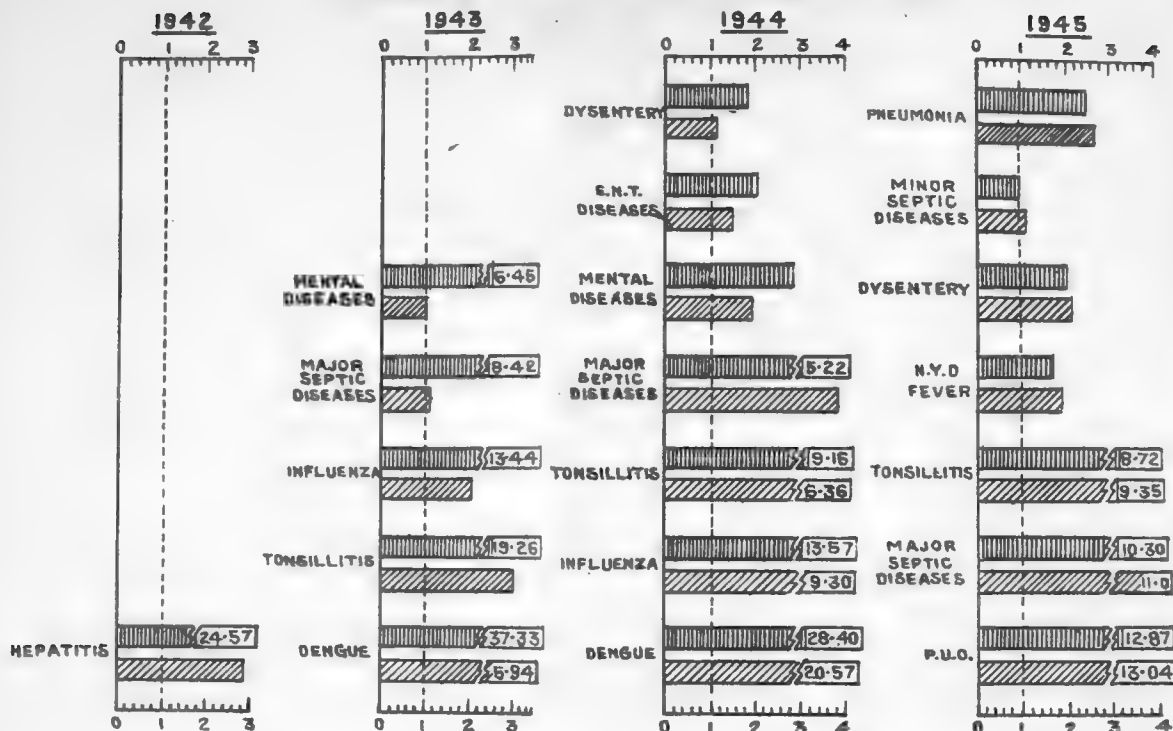
TABLE 16

Sex differentials based on Admissions to Hospitals and Relative morbidity rates: VCOs, & IORs and NCs(E): and WAC(I) and IMNS: SEAC (Indo-Burma Front)—1944.

Diseases	Relative morbidity rates			Absolute morbidity rates		
	WAC(I) and IMNS	Indian male troops	Differ- entials	WAC(I) and IMNS	Indian male troops	Differ- entials
Common cold ..	2.37	3.68	0.64	14.41	31.93	0.45
Dysentery ..	8.05	4.26	1.89	48.99	36.99	1.32
Hepatitis ..	1.42	1.36	1.04	8.64	11.78	0.73
Malaria ..	22.27	36.37	0.62	135.45	315.83	0.43
Minor septic diseases	2.37	3.19	0.74	14.41	27.71	0.52
Major septic diseases	0.47	0.09	5.22	2.88	0.75	3.84
Mumps ..	0.47	0.61	0.77	2.88	5.31	0.54
Venereal diseases ..	0.47	4.22	0.11	2.88	36.70	0.08
Mental diseases ..	1.42	0.49	2.90	8.64	4.28	2.02
ENT diseases ..	4.26	2.04	2.09	25.94	17.69	1.47
Eye diseases other than trachoma ..	0.95	1.37	0.69	5.76	11.94	0.48
Influenza ..	0.95	0.07	13.57	5.76	0.62	9.30
Diarrhoea ..	4.74	4.01	1.18	28.82	34.78	0.83
Skin diseases ..	0.95	2.80	0.34	5.76	24.36	0.24
NYD fever ..	6.16	12.11	0.51	37.46	105.12	0.36
Tonsillitis ..	2.84	0.31	9.16	17.29	2.72	6.36
PUO ..	..	0.25	..	..	2.19	..
Dengue ..	1.42	0.05	28.40	8.64	0.42	20.57

INDO-BURMA FRONT **SEX DIFFERENTIALS** **FEMALE TO MALE RATES**

(IN RESPECT OF DISEASES HAVING HIGHER FEMALE RATES)

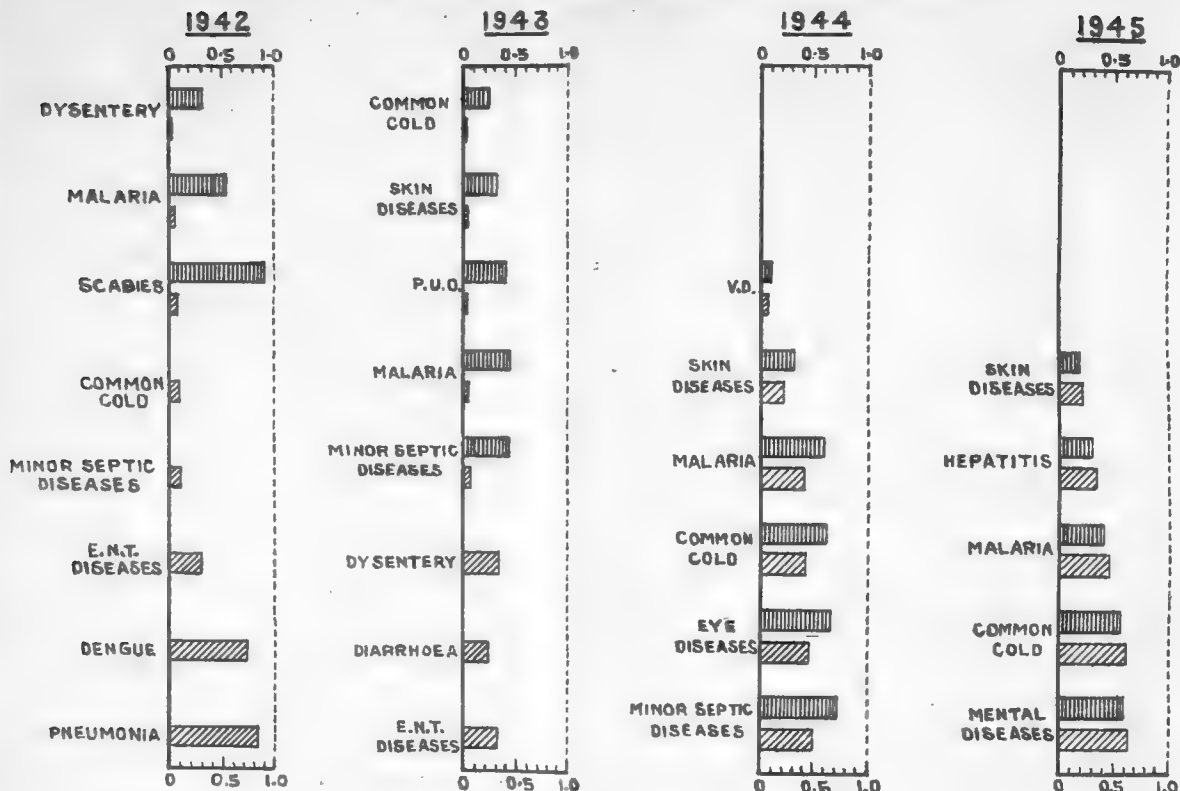


BASED ON CRUDE RELATIVE RATES.....
 BASED ON CRUDE ABSOLUTE RATES.....
 CORRESPONDING ABSOLUTE MALE RATES.

(SEE TABLE 18)

INDO-BURMA FRONT **SEX DIFFERENTIALS** **FEMALE TO MALE RATES**

(IN RESPECT OF DISEASES HAVING HIGHER MALE RATES)



BASED ON CRUDE RELATIVE RATES.....
 BASED ON CRUDE ABSOLUTE RATES.....
 CORRESPONDING ABSOLUTE MALE RATES-----

(SEE TABLE 19)

TABLE 19

Shorter tables of sex differentials—Diseases indicating higher incidence among VCOs & IORs and NCs(E) than among the female troops: SEAC (Indo-Burma Front).

Diseases	1942 Differential		1943 Differential		1944 Differential		1945 Differential	
	Rela- tive rate	Abso- lute rate	Rela- tive rate	Abso- lute rate	Rela- tive rate	Abso- lute rate	Rela- tive rate	Abso- lute rate
Pneumonia ..	7.67	0.86	..	..	..	..	..	..
Dengue ..	6.62	0.76	..	..	..	..	..	..
ENT diseases ..	2.81	0.33	2.08	0.33	..	..	..	..
Minor septic diseases	1.04	0.12	0.45	0.07	0.74	0.52	..	..
Common cold ..	1.01	0.11	0.23	0.03	0.64	0.45	0.59	0.64
Scabies ..	0.91	0.10	..	..	..	..	..	..
Malaria ..	0.56	0.06	0.47	0.07	0.62	0.43	0.43	0.46
Dysentery ..	0.30	0.03	2.24	0.35	..	..	..	..
Diarrhoea ..	..	..	1.57	0.25	..	0.83	..	..
PUO ..	..	..	0.40	0.06	..	..	..	..
Skin diseases ..	..	..	0.33	0.05	0.34	0.24	0.21	0.22
Eye diseases other than trachoma ..	..	..	..	..	0.69	0.48	0.37	0.40
NYD fever ..	..	..	..	..	0.51	0.36	..	..
Venereal diseases ..	..	..	..	..	0.11	0.08	..	..
Mental diseases ..	..	..	..	..	..	..	0.61	0.66
Hepatitis ..	..	..	..	..	..	0.73	0.33	0.36
Mumps ..	..	..	..	..	0.77	0.54	..	..

TABLE 20

Admissions to Hospitals—Annual rates per 1,000 strength: Indian Troops: SEAC (Indo-Burma Front).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.45	0.69	0.22	0.08
Cholera ..	0.52	0.70	0.15	0.16
Dengue ..	2.20	0.33	0.43	0.74
Diphtheria ..	..	0.12	0.04	0.06
Dysentery ..	49.42	33.91	37.00	12.35
Enteric group of fevers	0.56	0.53	0.17	0.15
Hepatitis ..	0.57	1.88	11.78	9.76
Malaria ..	418.33	478.90	315.68	45.63

TABLE 20—(Contd.).

Diseases			1942	1943	1944	1945
	Major septic diseases	..	0.07	3.35	0.75	0.96
	Minor septic diseases	..	28.16	35.16	27.70	18.76
	Mumps	..	9.96	6.14	5.31	4.73
	Oriental sore	..	0.20	0.18	0.05	0.02
	Pediculosis	..	0.01	0.04	..	..
	Plague	..	..	0.00	..	..
	Poliomyelitis	..	0.01	0.01	0.00	0.00
	Sandfly fever	..	0.10	0.35	0.08	0.41
	Scabies	..	16.11	26.61	21.09	8.34
	Smallpox	..	0.17	0.64	0.72	0.30
	Tuberculosis	..	2.11	1.53	1.19	1.24
	Trachoma	..	0.96	1.95	1.35	0.75
	Typhus fever	..	0.22	0.95	1.77	1.00
	Venereal diseases	..	44.75	71.47	36.67	31.81
	Total	..	574.88	665.45	462.17	137.28
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>					
	Beri beri	..	0.01	0.04	0.01	0.01
	Scurvy	..	0.11	0.25	0.01	0.04
	Total	..	0.12	0.30	0.02	0.05
(3)	<i>Diseases of the Blood and Blood forming organs</i>					
	Nutritional and other anaemia	..	..	..	..	2.75
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>					
	Mental diseases	..	1.41	3.10	4.28	5.33
(5)	<i>Diseases of the Nervous System and sense organs</i>					
	ENT diseases	..	15.65	19.25	17.69	8.85
	Eye diseases other than trachoma	..	9.41	17.14	11.93	8.87
	Total	..	25.06	36.40	29.63	17.73
(6)	<i>Diseases of the Circulatory system</i>					
	Rheumatic fever	..	0.61	1.41	0.28	0.19
	Other circulatory diseases	..	4.58	3.56	4.28	1.70
	Total	..	5.19	4.97	4.56	1.89
(7)	<i>Diseases of the Respiratory system</i>					
	Common cold	..	14.56	34.37	31.91	16.43
	Tonsillitis	..	2.81	3.37	2.73	2.27
	Influenza	..	11.30	2.70	0.63	0.40
	Pneumonia	..	3.86	..	2.82	2.63
	Other respiratory diseases	..	22.80	32.25	25.64	14.47
	Total	..	55.34	72.70	63.72	36.19

TABLE 20—(Contd.).

Diseases	1942	1943	1944	1945
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea	25·27	27·97	34·78	12·16
Other digestive diseases ..	21·22	35·57	34·80	14·99
Total	46·49	63·54	69·58	27·15
(9) <i>Diseases of the Skin and Cellular tissues</i>				
Skin diseases	11·98	24·01	24·35	15·62
Aerolar tissue	0·65	..	..	..
Total	12·63	24·01	24·35	15·62
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever	24·73	59·45	105·07	19·59
PUO	3·27	9·88	2·19	0·27
Total	28·00	69·34	107·25	19·86
(11) <i>All other diseases</i>	100·31	132·49	102·62	51·73
(12) <i>All diseases</i>	849·45	1072·29	868·19	315·60
(13) <i>Accidents, poisoning and violence (non-battle injuries)</i>				
Burns and scalds .. ..	..	..	2·24	2·91
Other local injuries	36·59	42·98	41·11	34·66
Total	36·59	42·98	43·35	37·57
(14) <i>Accidents, poisoning and violence (battle injuries)</i>				
Injuries caused by blast .. ..	..	..	0·31	0·09
Bomb wounds	0·05	2·37	8·93	6·79
Gunshot wounds	4·00	3·77	16·09	12·97
Shell wounds	0·40	1·20	9·01	5·64
Total	4·46	7·35	34·35	25·49
(15) <i>All cases</i>	890·50	1122·63	945·88	378·66

TABLE 21

Relative morbidity rates: Indian Troops: SEAC (Indo-Burma Front).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever	0·05	0·06	0·03	0·03
Cholera	0·06	0·07	0·02	0·05
Dengue	0·26	0·03	0·05	0·23
Diphtheria .. ..	..	0·01	0·00	0·02
Dysentery	5·82	3·16	4·26	3·91
Enteric group of fevers	0·07	0·05	0·02	0·05
Hepatitis	0·07	0·17	1·36	3·09
Malaria	49·25	44·66	36·36	14·46
Major septic diseases	0·00	0·31	0·09	0·30
Minor septic diseases	3·31	3·28	3·19	5·95

TABLE 21—(Contd.).

Diseases		1942	1943	1944	1945
Mumps .. ..	..	1.17	0.57	0.61	1.50
Oriental sore ..	..	0.02	0.02	0.00	0.01
Pediculosis .. ..	..	0.00	0.00	..	..
Plague .. ..	..	..	0.00	..	..
Poliomyelitis ..	..	0.00	0.00	0.00	0.00
Sandfly fever ..	..	0.01	0.03	0.01	0.13
Scabies .. ..	..	1.90	2.48	2.43	2.64
Smallpox .. ..	..	0.02	0.06	0.08	0.10
Tuberculosis ..	..	0.25	0.14	0.14	0.39
Trachoma .. ..	..	0.11	0.18	0.16	0.24
Typhus fever ..	..	0.03	0.09	0.20	0.32
Venereal diseases ..	..	5.27	6.67	4.22	10.08
Total .. ..	..	67.68	62.06	53.23	43.50
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>					
Beri beri .. ..	..	0.00	0.00	0.00	0.00
Scurvy .. ..	..	0.01	0.02	0.00	0.01
Total .. ..	..	0.01	0.03	0.00	0.02
(3) <i>Diseases of the Blood and Blood forming organs</i>					
Nutritional and other anaemia .. ..	..	..	..	..	0.87
(4) <i>Menial, Psychoneurotic and Personality disorders</i>					
Mental diseases ..	..	0.17	0.29	0.49	1.69
(5) <i>Diseases of the Nervous system and Sense organs</i>					
ENT diseases ..	..	1.84	1.80	2.04	2.81
Eye diseases other than trachoma .. ..	..	1.11	1.60	1.37	2.81
Total .. ..	..	2.95	3.39	3.41	5.62
(6) <i>Diseases of the Circulatory system</i>					
Rheumatic fever ..	..	0.07	0.13	0.03	0.06
Other circulatory diseases .. ..	..	0.54	0.33	0.49	0.54
Total .. ..	..	0.61	0.46	0.52	0.60
(7) <i>Diseases of the Respiratory system</i>					
Common cold ..	..	1.71	3.20	3.68	5.20
Tonsillitis .. ..	..	0.33	0.31	0.31	0.72
Influenza .. ..	..	1.33	0.25	0.07	0.13
Pneumonia .. ..	..	0.45	..	0.32	0.83
Other respiratory diseases .. ..	..	2.68	3.01	2.95	4.58
Total .. ..	..	6.51	6.77	7.34	11.46
(8) <i>Diseases of the Digestive system</i>					
Diarrhoea .. ..	..	2.97	2.61	4.01	3.85

TABLE 21—(Contd.).

Diseases	1942	1943	1944	1945
Other digestive diseases	2.50	3.32	4.01	4.75
Total	5.47	5.92	8.01	8.01
(9) <i>Diseases of the Skin and cellular tissues</i>				
Skin diseases ..	1.41	2.24	2.88	4.95
Aerolar tissue ..	0.08	..	..	..
Total	1.49	2.24	2.88	4.95
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever	2.91	5.54	12.10	6.21
PUO	0.38	0.92	0.25	0.09
Total	3.29	6.47	12.35	6.30
(11) <i>All other diseases</i> ..	11.81	12.35	11.82	16.39
(12) <i>All diseases</i>	100.00	100.00	100.00	100.00

TABLE 22

Relative casualty rates: Indian Troops: SEAC (Indo-Burma Front).

Specialist Groups	1942	1943	1944	1945
(1) Infective and parasitic diseases	64.56	59.28	48.85	36.25
(2) Allergic, endocrine system, metabolic, and nutritional diseases ..	0.01	0.03	0.00	0.01
(3) Diseases of the blood and blood forming organs .. ..	..	..	..	0.72
(4) Mental, psychoneurotic and personality disorders	0.16	0.28	0.45	1.41
(5) Diseases of the nervous system and sense organs	2.81	3.24	3.13	4.68
(6) Diseases of the circulatory system	0.58	0.44	0.48	0.50
(7) Diseases of the respiratory system	6.21	6.47	6.74	9.56
(8) Diseases of the digestive system	5.22	5.66	7.36	7.17
(9) Diseases of the skin and cellular tissues ..	1.42	2.14	2.57	4.12
(10) Symptoms, senility and ill-defined conditions ..	3.15	6.18	11.33	5.25
(11) All other diseases ..	11.26	11.80	10.85	13.66
(12) All diseases	95.39	95.52	91.79	83.35
(13) Non-battle injuries	4.11	3.83	4.58	9.92
(14) Battle injuries	0.50	0.65	3.63	6.73
(15) All cases	100.00	100.00	100.00	100.00

Section VII

WEST AFRICAN OTHER RANKS

There was only one division, the 81st (WA) Division less the 3rd (WA) Brigade Group, of the West African Other Ranks, attached to the Fourteenth Army during 1943-44. Another division, the 82nd (WA) Division, joined it and both of them were put under command of the XVth Indian Corps on the formation of Headquarters ALFSEA towards the end of 1944. They remained there till March 1945. In June of that year the 82nd (WA) Division was placed directly under the command of the newly formed Twelfth Army. The number of West African Other Ranks, on this front, did not exceed the strength of two divisions. Figures of their morbidity are available only from March 1944. In the ensuing tables, therefore, the year 1944 covers information for ten months only, from March to December. In 1945, sickness among them is given upto the end of September of that year.

Unlike the Indian troops, West African Other Ranks suffered most from venereal diseases in both these years. The rates of incidence produced were 75 per 1,000 in 1944 and 51 per 1,000 in 1945, showing a fall of 32 per cent. in the latter year (Table 23). It should, however, be remembered that even that was $1\frac{1}{2}$ times that of the VCOs and IORs. During 1944 the rate of venereal diseases among the WAORs was more than twice the rate for VCOs and IORs. The fact that venereal diseases caused the highest sickness of all the diseases from which the WAORs suffered is borne out by the relative rates also (Table 24). It was responsible for 14 per cent. and 17 per cent. of total sickness in each of the two years respectively among them. No other single disease, given in these tables, showed such a heavy rate. Monthly admissions from venereal diseases and rates per 1,000, among the WAORs are reproduced below:—

Month	1944		1945	
	Actual Admissions	Rate per 1,000	Actual Admissions	Rate per 1,000
January .. ..	..	..	294	5.51
February .. ..	..	..	187	3.69
March	273	7.93	249	4.74
April	292	8.53	341	9.30
May	291	9.89	179	5.50
June	215	6.66	187	6.12
July	209	6.13	227	7.12
August	243	7.97	142	4.81
September	301	8.88	178	6.05
October	397	11.12		
November	280	5.31		
December	306	5.80		

It seems that venereal diseases rate fluctuated very little during the period under consideration. The highest incidence was recorded in October 1944, with an admission figure of 397 and an absolute rate of 11.12 per 1,000. The lowest rate of 3.69 occurred in February, 1945.

Rates of malaria incidence were 32 per 1,000 in 1944 and 8 per 1,000 in 1945 among the West African Other Ranks. The corresponding rates for VCOs and IORs were 319 and 51 respectively. This shows that the West Africans suffered 1/10th of VCOs and IORs from malaria in 1944 and 1/6th in 1945. These rates are so low as to cause malaria to be fourth among diseases in descending order of importance for the West Africans (Tables 23 and 24) in 1944.

Dysentery was second most important cause of sickness among the West Africans (Tables 23 and 24) in 1944. By 1945 it was reduced to fifth position in terms of absolute rate. On an average, out of every 1,000 of the West Africans 44 suffered from it during 1944 and only 17 during 1945. This is exactly what its relative rates in the two years also testify. On a comparison of absolute rates produced by dysentery among the WAORs with those for VCOs and IORs it will be seen that this disease produced greater rates among the former than among the latter. It is possible that Indian troops had acquired greater immunity to this disease by the end of 1943 when the West Africans were brought in for the first time on this front. Monthly admission rates due to dysentery among the WAORs are given below:—

Monthly incidence rate per 1,000 strength of dysentery.

Month		1944	1945
January ..	..	..	1.71
February ..	..	..	2.45
March ..	..	3.08	2.25
April ..	..	2.92	3.33
May ..	..	5.81	1.35
June ..	..	12.76	1.80
July ..	..	5.54	1.38
August ..	..	4.98	0.74
September ..	..	3.45	0.88
October ..	..	3.75	.
November ..	..	2.85	
December ..	..	2.20	

These figures bring out the fact that the highest rate, of 12.76 per 1,000, was recorded in June 1944 and the lowest (at 0.74 per 1,000) in August 1945. Further, that the months of May to August in 1944 and February to April in 1945 were the months of heavier incidence. On the whole, these figures show gradually falling rates from June 1944 to the end of the period.

It has been seen above that the absolute rates of admission for dysentery among West Africans were higher than those among the

Indians. This was not the case with diarrhoea morbidity. In 1944, diarrhoea caused 24 sickness in every 1,000 West Africans and 10 sickness among them in 1945. Its relative rates were 4.7 per cent. and 3.2 per cent. respectively, in two years.

Another very distinct feature of sickness among the WAORs was their relatively high absolute rates for the diseases of respiratory system. This group of diseases was responsible for a rate of 46 per 1,000 both in 1944 and in 1945. Its relative rates were 9 per cent. and 15 per cent. respectively. The corresponding absolute rates from these diseases for the VCOs and IORs were 63 and 39 per 1,000. This specialist group of diseases consists of (i) common cold, (ii) tonsillitis, (iii) influenza, (iv) pneumonia and (v) other respiratory diseases. As will be seen on a comparison of absolute rates for each of these diseases for WAORs and VCOs and IORs (Tables 1 and 23), the major share of the greater incidence of this group among the WAORs was contributed by the higher figures particularly of diseases under (iv) and (v). They were responsible for fairly high absolute and relative rates.

Hepatitis caused sickness of the order of 17 per 1,000 and 5 per 1,000 among them during the two years. Its relative rates were 3.3 per cent. and 1.6 per cent. of all diseases.

Other diseases which may be included among the first few important causes of sickness among the West Africans but which showed rates of incidence consistently lower during the two years than the VCOs and IORs were NYD fever, minor septic diseases and skin diseases. The difference in the rates for NYD fever between the two categories of personnel was particularly well marked in 1944, when the WAORs produced a rate which was less than 1/3rd of the rate for the Indians. Scabies also caused comparatively lower sickness among them.

One fact which clearly emerges from a comparison of the sickness among the West Africans and that among the VCOs and IORs is that the West Africans suffered more from venereal diseases and respiratory diseases and less from diseases like malaria, diarrhoea, scabies, skin diseases and septic diseases.

Among the diseases which, though not great contributors to total sickness among the WAORs but were still important, were eye diseases, mental diseases, smallpox, tonsillitis and mumps (Table 23). It is interesting to observe in this Table that diseases like cholera, enteric group of fevers, sandfly fever, heat exhaustion (9 cases in 1945), heat stroke (no case in 1945) and typhus were responsible for very small incidence among the West Africans. The rates of smallpox and typhus are worthy of notice, because the former caused comparatively heavier sickness among them, as against other troops on this front and the latter was responsible for a lower incidence.

Another sidelight on the morbidity among the WAORs is thrown by relative casualty rates which are included in Table 25. They at once show that 'infective and parasitic diseases' were responsible for 37 per cent. of all casualties in 1944 and only 30 per cent. in 1945. The corresponding percentages for Indian Other Ranks, it will be remembered, were 48 and 36 respectively. Respiratory diseases accounted

for about 8 and 13 per cent. of all West African casualties in the two years. Corresponding figures for the VCOs and IORs were lower in the two years. The fall in the average number daily sick and their rate per 1,000 of West African troops is distinct in 1945. From an average number, 793 daily sick, and a rate of 21·2 per 1,000 in 1944, an average number of 46 only was daily sick in 1945, with a rate of 1·2 per 1,000. A fall of 202 per 1,000 in the total casualty rates between the two years can also be seen in Table 23 indicating a remarkable improvement in their health.

Enemy action made 13 out of every 1,000 of WAORs hospitalized during 1944 and 28 out of every 1,000 of them in 1945. It was responsible for 2 per cent. and 8 per cent. of all casualties in the two years. The number of average daily hospitalized cases due to war wounds among the WAORs during the two years were 31 and 4 respectively.

On the whole, there were 559 casualties for every 1,000 of the WAORs in 1944 and 357 in 1945.

CONCLUSION

Venereal diseases were responsible for the highest rates of morbidity in these troops. These rates were higher than the corresponding Indian rates. So also was the case in respect of respiratory diseases and hepatitis. The WAORs, however, suffered from malaria, diarrhoea, skin diseases, scabies and septic diseases at a lower rate than VCOs and IORs.

For the WAORs the first few important diseases, with high morbidity rates, were venereal diseases, dysentery, NYD fever, malaria, respiratory diseases, minor septic diseases, digestive diseases, hepatitis and skin diseases. Average number daily sick from all of them fell from 793 in 1944 to 46 in 1945. A fall of 202 per 1,000 in total casualty rates by 1945 was also recorded.

TABLE 23

Admissions to Hospitals—Annual rates per 1,000 strength: WAORs; SEAC (Indo-Burma Front).

Diseases				1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever	..	..	0·37	0·93
	Cholera	..	..	0·13	0·05
	Dengue	..	..	0·40	0·16
	Dysentery	..	..	43·68	16·80
	Enteric group of fevers	..	..	0·13	0·36
	Hepatitis	..	..	17·19	4·85
	Malaria	..	..	32·37	7·86
	Major septic diseases	..	..	0·9	0·21
	Minor septic diseases	..	..	25·31	19·13
	Mumps	..	..	1·15	1·89

TABLE 23—(Contd.).

Diseases				1944	1945
	Pediculosis	..	..	0.35	..
	Sandfly fever	..	..	0.40	0.70
	Scabies	..	..	3.53	2.28
	Smallpox	..	..	2.67	0.88
	Tuberculosis	..	..	0.43	0.49
	Trachoma	..	..	0.03	0.16
	Typhus fever	..	..	0.61	0.10
	Venereal diseases	..	..	75.04	51.44
	Total	..	..	204.72	108.30
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Beri beri	..	..	0.03	0.03
	Scurvy	..	..	..	0.08
	Total	..	..	0.03	0.10
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases	..	..	2.78	3.37
(4)	<i>Diseases of the Nervous system and Sense organs</i>				
	ENT diseases	..	..	7.81	5.94
	Other eye diseases	..	..	7.73	8.35
	Total	..	..	15.53	14.29
(5)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever	..	..	0.21	0.13
	Other circulatory diseases	..	..	1.92	1.68
	Total	..	..	2.14	1.81
(6)	<i>Diseases of the Respiratory system</i>				
	Common cold	..	..	5.69	5.03
	Tonsillitis	..	..	1.60	1.43
	Influenza	..	..	0.03	..
	Pneumonia	..	..	11.63	17.58
	Other respiratory diseases	..	..	26.81	21.60
	Total	..	..	45.76	45.63
(7)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	..	..	24.14	9.72
	Other digestive diseases	..	..	19.03	8.35
	Total	..	..	43.17	18.07
(8)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases	..	..	13.34	12.52
	Aerolar tissue	..	..	..	..
	Total	..	..	13.34	12.52
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever	..	..	34.91	14.21
	PUO ..	..	..	2.22	0.88
	Total	..	..	37.12	15.09
(10)	<i>All other diseases</i>			153.29	82.97
(11)	<i>All diseases</i>			517.88	301.65
(12)	<i>Accidents, poisoning and violence (non-battle injuries)</i>				
	Burns and scalds	..	..	1.31	0.98
	Other local injuries	..	..	27.21	26.03
	Total	..	..	28.52	27.02

TABLE 23—(Contd.).

Diseases				1944	1945
(13)	<i>Accidents, poisoning and violence (battle injuries)</i>				
	Injuries caused by blast	..	..	0·19	0·16
	Bomb wounds	..	..	0·75	4·20
	Gunshot wounds	..	..	10·96	13·87
	Shell wounds	..	..	1·23	10·19
	Total	..	..	13·12	28·42
(14)	<i>All cases</i>	..	..	559·53	357·08
(15)	<i>Average daily sick</i>				
	(i) - Sickness	..	..	21·21	1·2
	(ii) War wounds	..	..	0·83	0·1
	Total	..	..	22·04	1·3

TABLE 24

Relative morbidity rates: WAORs: SEAC (Indo-Burma Front).

Diseases				1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever	..	..	0·07	0·31
	Cholera	..	..	0·03	0·02
	Dengue	..	..	0·08	0·05
	Dysentery	..	..	8·43	5·57
	Enteric group of fevers	..	..	0·03	0·12
	Hepatitis	..	..	3·32	1·61
	Malaria	..	..	6·25	2·60
	Major septic diseases	..	..	0·17	0·07
	Minor septic diseases	..	..	4·89	6·34
	Mumps	..	..	0·22	0·63
	Pediculosis	..	..	0·07	..
	Sandfly fever	..	..	0·08	0·23
	Scabies	..	..	0·68	0·76
	Smallpox	..	..	0·52	0·29
	Tuberculosis	..	..	0·09	0·16
	Trachoma	..	..	0·00	0·05
	Typhus fever	..	..	0·12	0·03
	Venereal diseases	..	..	14·48	17·05
	Total	..	..	39·53	35·90
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Beri beri	..	..	0·00	0·01
	Scurvy	..	..	..	0·03
	Total	..	..	0·00	0·04
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases	..	..	0·54	1·12
(4)	<i>Diseases of the Nervous system and Sense organs</i>				
	ENT diseases	..	..	1·51	1·97
	Eye diseases other than trachoma	..	..	1·49	2·60
	Total	..	..	3·00	4·56

TABLE 24—(Contd.).

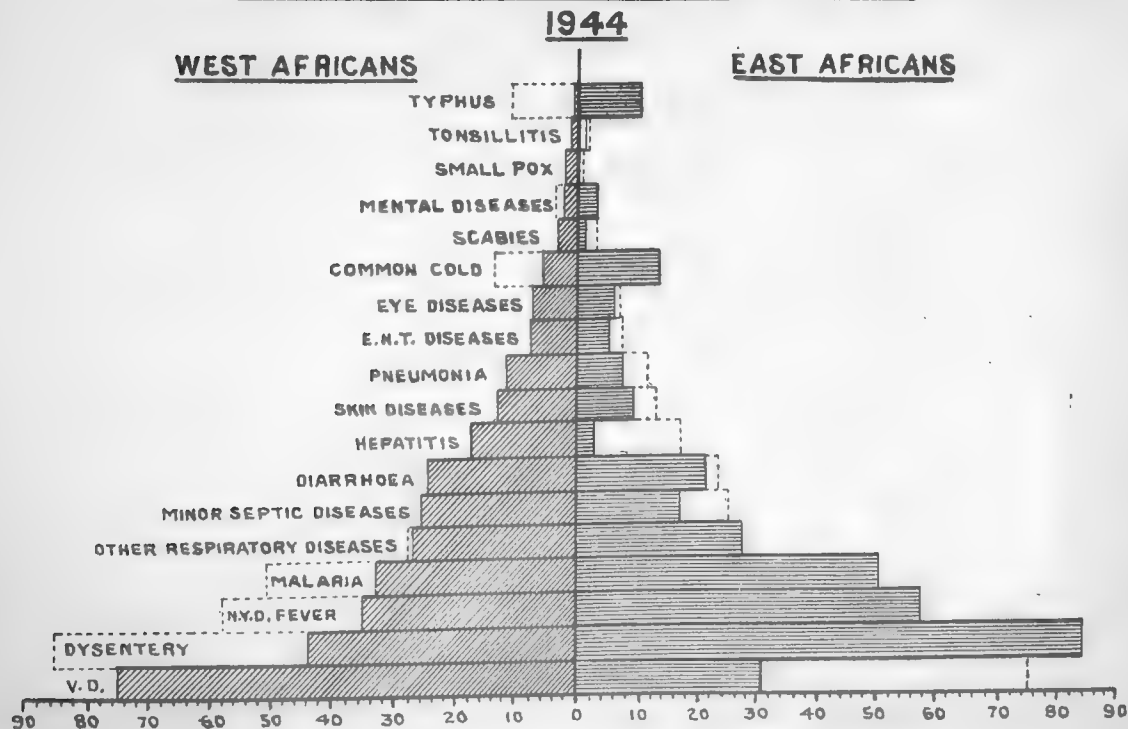
Diseases				1944	1945
(5)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever			0·04	0·04
	Other circulatory diseases			0·37	0·56
	Total			0·41	0·60
(6)	<i>Diseases of the Respiratory system</i>				
	Common cold			1·10	1·67
	Tonsillitis			0·31	0·47
	Influenza			0·00	..
	Pneumonia			2·24	5·83
	Other respiratory diseases			5·18	7·16
	Total			8·84	15·13
(7)	<i>Diseases of the Digestive system</i>				
	Diarrhoea			4·66	3·22
	Other digestive diseases			3·67	2·77
	Total			8·34	5·99
(8)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases			2·58	5·15
	Aerolar tissue .. ..			..	..
	Total			2·58	5·15
(9)	<i>Symptoms Senility and Ill-defined conditions</i>				
	NYD fever			6·74	4·71
	PUO			0·43	0·29
	Total			7·17	5·00
(10)	<i>All other diseases</i>			29·60	27·51
(11)	<i>All diseases</i>			100·00	100·00

TABLE 25

Relative casualty rates: WAORs: SEAC (Indo-Burma Front).

Specialist groups				1944	1945
(1)	Infective and parasitic diseases ..			36·58	30·33
(2)	Allergic, endocrine system, metabolic and nutritional diseases			0·00	0·03
(3)	Mental, psychoneurotic and personality disorders			0·50	0·94
(4)	Diseases of the nervous system and sense organs			2·78	3·86
(5)	Diseases of the circulatory system ..			0·38	0·51
(6)	Diseases of the respiratory system ..			8·18	12·78
(7)	Diseases of the digestive system ..			7·72	5·06
(8)	Diseases of the skin and cellular tissue ..			2·38	3·51
(9)	Symptoms, senility and ill-defined conditions			6·63	4·23
(10)	All other diseases			27·40	23·23
(11)	All diseases			92·55	84·47
(12)	All non-battle injuries			5·10	7·57
(13)	All battle injuries			2·35	7·96
(14)	All cases			100·00	100·00

INDO-BURMA FRONT
ABSOLUTE RATES OF INCIDENCE FOR CERTAIN DISEASES
COMPARISON BETWEEN W.A.O.Rs. AND E.A.O. Rs.



(SEE TABLE 23 AND 26)

INDO-BURMA FRONT

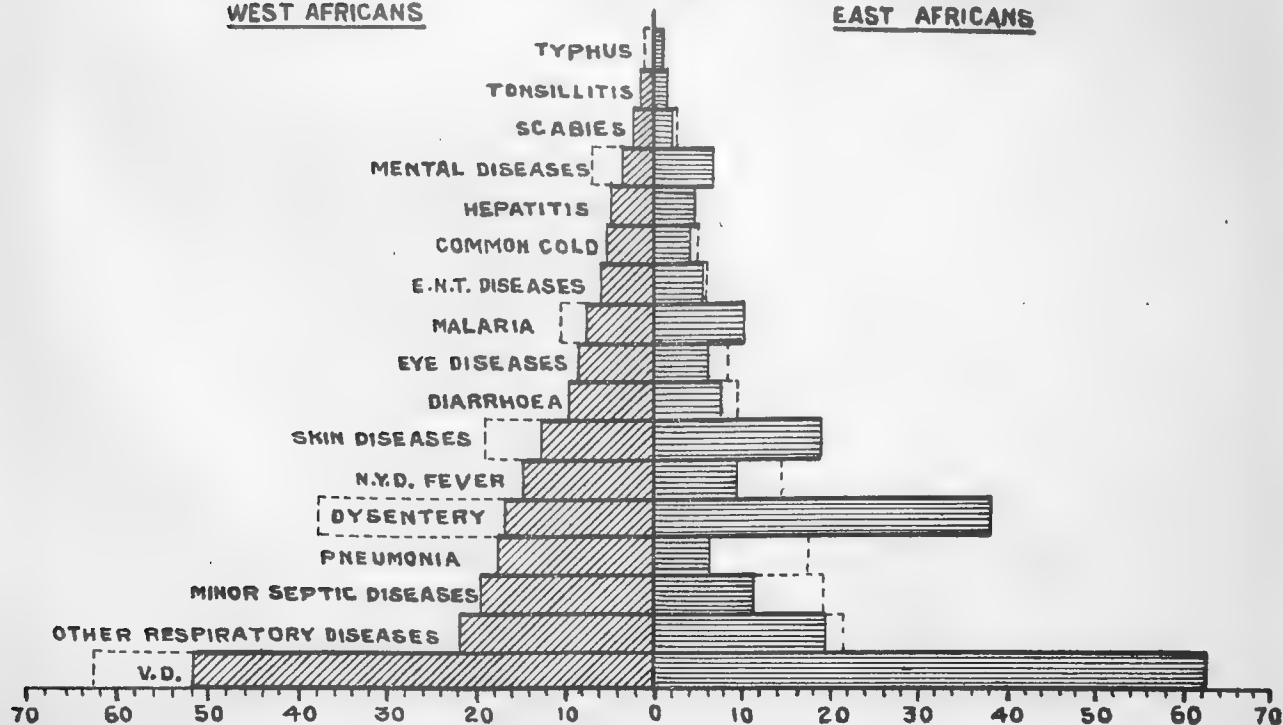
ABSOLUTE RATES OF INCIDENCE FOR CERTAIN DISEASES

COMPARISON BETWEEN W.A.O.Rs. AND E.A.O.Rs.

1945

WEST AFRICANS

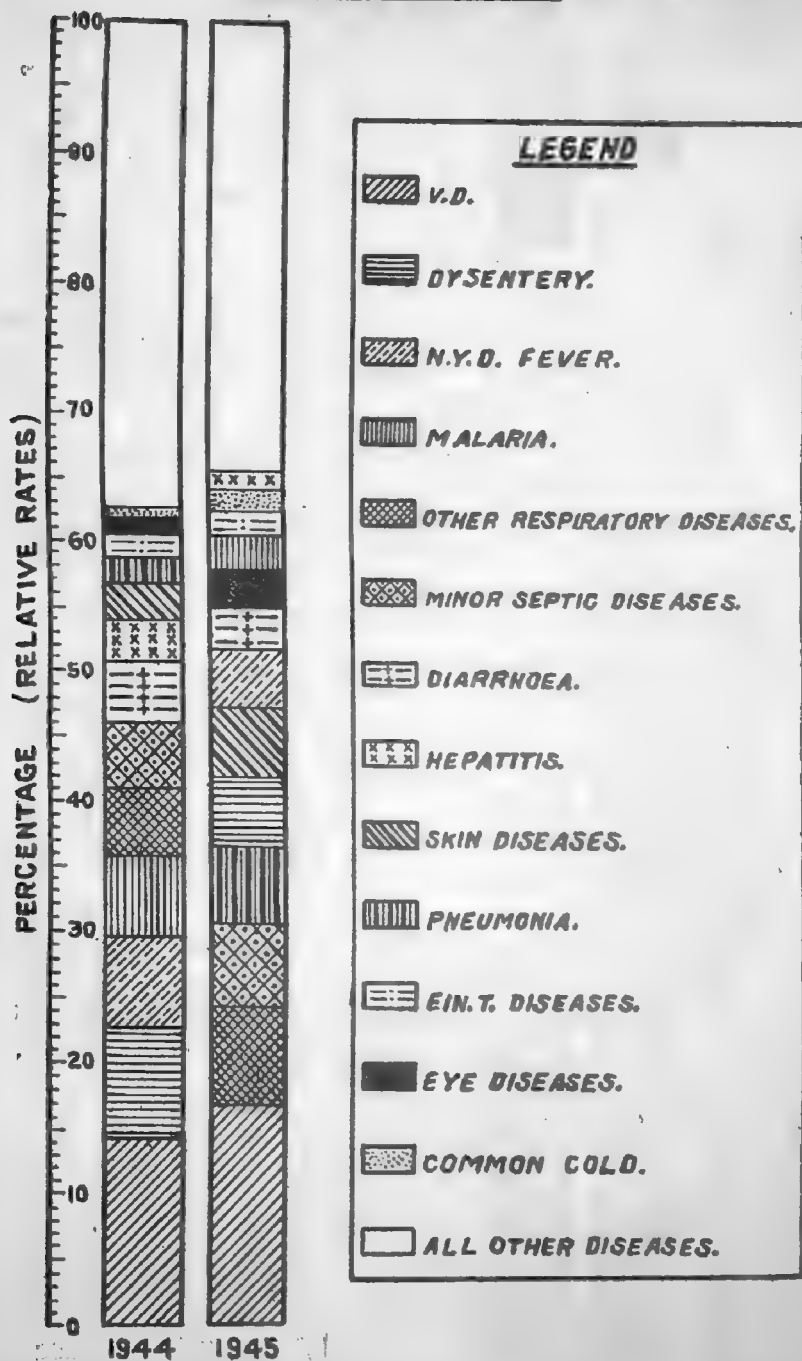
EAST AFRICANS



(SEE TABLE 23 AND 26)

INDO-BURMA FRONT

RELATIVE MORBIDITY RATES DUE TO SPECIFIC DISEASES
(W.A.O.Rs.) 1944-1945

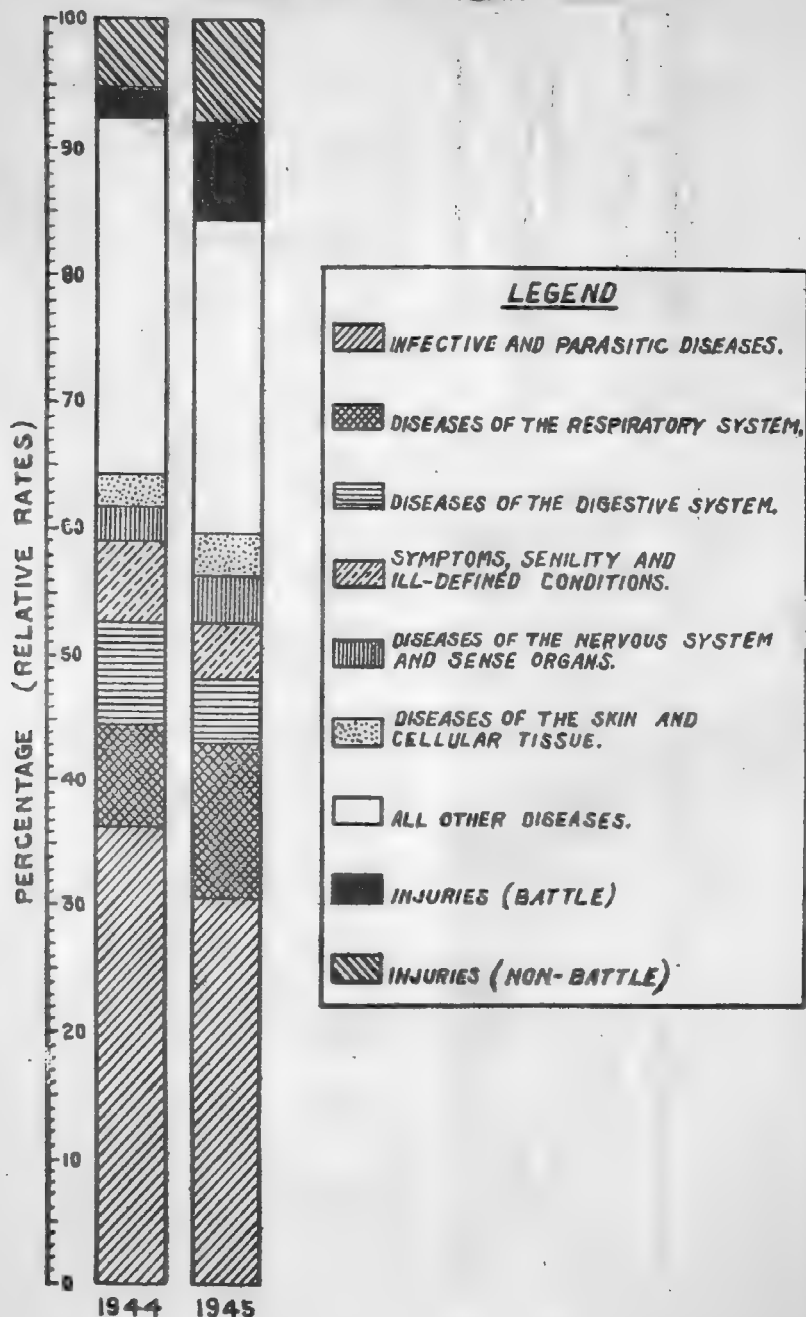


(SEE TABLE 24)

INDO-BURMA FRONT

RELATIVE CASUALTY RATES DUE TO GROUPS OF DISEASES

(W.A.O.Rs.) 1944 - 1945



(SEE TABLE 25)

Section VIII

EAST AFRICAN OTHER RANKS

One division of East Africans, the 11th(EA) Division, was brought in on this front in June-July 1944 under the command of the Fourteenth Army. In December 1944, however, this division was earmarked as a reserve formation of the Fourteenth Army, but the 28th(EA) Infantry Brigade and the 22nd(EA) Brigade Group were placed respectively under the Fourteenth Army and the XVth Indian Corps. There were some non-divisional East African troops also attached to the ALFSEA Command after 1944. The strength of East African Other Ranks on this front did not at any time exceed the ordinary strength of two divisions during the period under consideration. Sickness history of EAORs is generally different from that of the WAORs. The greatest single cause of sickness among the EAORs, on this front, was dysentery. The reason might presumably be the same as has been mentioned already about the WAORs viz. their lower immunity. This fact is reinforced by monthly rates, given later in this paragraph, which show the prevalence of higher rates of incidence during the first three to four months after their arrival on the front. The annual rate in 1944 was 85 per 1,000 which is the highest rate recorded by any category of troops for this disease. It was 13 per cent. higher than the corresponding rate for West Africans and more than 100 per cent. higher than the rate for VCOs and IORs. It caused 1/5th of all sickness in that year, among the East Africans (Table 26 and 27). During 1945 a fall of 55 per cent. occurred in the previous year's rate. It was 38 per 1,000. Still it was more than twice the rate for West Africans and about thrice the rate of the VCOs and IORs. In terms of relative rate also, dysentery, next to venereal diseases, was the most important contributor to total sickness during 1945. The rate was, 12 per cent. It has already been seen in the introductory remarks given above that in December 1944, the main body of the East African troops was earmarked as a reserve formation of the Fourteenth Army. It is possible that this might have led to a relaxation in the anti-fly discipline among them. Monthly rates of incidence of dysentery are given on the next page. It will be seen from the figures given on the next page that the higher rates in 1944 clustered round the months June to September. Actually the highest rate was 20.5 per 1,000 during June 1944. During 1945, the month of July recorded a rate which was higher than the rate in the previous month and the following months. It was not, however, the highest rate which was recorded in April 1945 at 11.6. In May 1945 also dysentery caused great sickness among the East Africans. Generally, it can be stated about these figures that they show a falling trend in rates, when the period as a whole is taken into consideration.

Relaxed discipline and greater leisure, besides other factors, probably led to a 105.6 per cent. increase in the venereal disease rate among the East Africans in 1945. The rates in the two years were 30 per 1,000 in 1944 and 62 per 1,000 in 1945. The increase in 1945 among the East Africans made these diseases the most important single cause of sickness in that year. They caused 1/5th of all sickness in them.

In 1944 venereal diseases came as fourth in terms of absolute rate and of relative rates. Rates of monthly incidence of venereal diseases, which are given below, depict a trend just the reverse of that indicated by the figures for dysentery. They generally show an increasing trend over the whole period. Dysentery rate showed a fall of about 55 per cent. but venereal disease a rise of more than 100 per cent. in 1945.

Monthly incidence rates per 1,000 strength of dysentery.

Month			1944	1945
January	..	..	..	2.6
February	..	..	..	2.2
March	..	..	..	3.0
April	..	..	..	11.6
May	..	..	..	6.8
June	..	..	20.5	3.7
July	..	..	18.4	5.6
August	..	..	7.6	3.1
September	..	..	16.0	1.2
October	..	..	11.7	
November	..	..	6.7	
December	..	..	5.5	

Monthly incidence rate per 1,000 strength of venereal diseases.

Month			1944	1945
January	..	..	..	4.43
February	..	..	..	3.32
March	..	..	..	4.52
April	..	..	..	7.50
May	..	..	..	6.10
June	..	..	3.70	8.82
July	..	..	5.05	13.99
August	..	..	3.95	16.07
September	..	..	6.69	12.30
October	..	..	3.01	
November	..	..	1.33	
December	..	..	5.33	

Malaria was responsible for higher sickness among the East Africans than in the West Africans. Its absolute rates were 50 and 10 per 1,000 during 1944 and 1945 respectively. Its rate in 1944 for the East Africans was 56 per cent. higher than the corresponding rate for the West Africans, and 78 per cent. higher in 1945. It may, however, be seen that malaria rates for both of them were lower than the corresponding rates for VCOs and IORs. In 1944 the malaria rate of the East Africans was only 1/6th of the rate for VCOs and IORs and 1/5th

of that rate in 1945. As in the case of the West Africans, it appears that relatively malaria was not a problem of much concern among them. It caused 12 per cent. of all sickness among the East Africans in 1944. NYD fever had a rate of 58 per 1,000 in 1944 but a rate of only 9 per 1,000 in 1945. With a falling malaria rate, these fevers have also generally registered a falling incidence.

Diseases of the respiratory system caused, among the East Africans, sickness on a lower rate during the two years than that among the West Africans. The rates in the former were 50 per 1,000 and 31 per 1,000. These are higher figures than the corresponding figures for the VCOs and IORs but the range is smaller. It may be added that these diseases did not indicate any fall in the rates during the two years for the West Africans. Here they show a sizeable fall of 28 per cent. in 1945. They were responsible for 12 per cent. and 10 per cent. of all sickness during the two years. As between the diseases included in this specialist group, the main cause of difference between the East and West Africans was pneumonia. It had rates of 8 per 1,000 and 6 per 1,000 respectively during the two years for the East Africans but of 12 and 18 per 1,000 for the West Africans. It was responsible for about 1.76 per cent. and 1.9 per cent. of all sickness among the East Africans (Table 27).

Rates of incidence for diarrhoea, minor septic diseases and skin diseases were consistently lower in the two years among the East Africans than the relevant rates either among the West Africans or VCOs and IORs.

Another point of contrast between the East and West Africans is produced by their absolute rates for common cold and typhus. Common cold produced a rate of 13 per 1,000 in the East Africans during 1944 against 6 per 1,000 of the West Africans. Typhus was responsible for rates of 10 per 1,000 and 2 per 1,000 respectively during 1944 and 1945 in the East Africans. The corresponding figures for the West Africans were 0.6 in 1944 and 0.10 in 1945. Rates of incidence for common cold in the VCOs and IORs during 1944 and 1945 were considerably higher. In respect of their relative rates also typhus and common cold were important causes of sickness in 1944 for the East Africans. A high rate of 10 per 1,000 exhibited by typhus among the East African troops is the highest recorded by any other category of troops taken as a whole from this disease on this front.

Among the important diseases, which failed to show high incidence rates among the East Africans were influenza, eye diseases, hepatitis and tonsillitis. All of them showed declining rates in 1945 except hepatitis and tonsillitis.

Enteric group of fevers, smallpox and effects of heat did not cause any sizeable sickness in the East Africans (Table 26).

Dengue had absolute rates of 0.9 and 0.2 in 1944 and 1945. Scabies and major septic diseases registered higher rates in 1945 than those in 1944. More than four-fold increase in the incidence of tuberculosis among the East Africans in 1945 seems extraordinarily.

Relative casualty rates given in Table 28 show that infective and parasitic diseases were responsible for 41 per cent. of all casualties in 1944 and 36 per cent. in 1945. Diseases alone were responsible for 90 per cent. of all admissions in 1944 and 85 per cent. of all admissions in 1945. Relative share of war wounds declined from 5.4 per cent. to 4.2 per cent. Relevant absolute rates of injuries due to enemy action were 26 per 1,000 and 16 per 1,000 (Table 26).

Average number daily sick due to sickness in the two years were 417 and 28 respectively.

On the whole, East Africans fell ill at a lower rate, particularly in 1944, than the West Africans. In 1944 they had 433 sick per 1,000 against 518 of the West Africans and against 911 per 1,000 of the VCOs and IORs. These figures in 1945 were 318 for East Africans, 302 for West Africans and 350 for VCOs and IORs.

CONCLUSION

The greatest single cause of morbidity was dysentery. Other important diseases, which caused high morbidity, were NYD fever, malaria, venereal diseases, respiratory diseases including common cold, diarrhoea, minor septic diseases, typhus and skin diseases.

Unlike other troops, EAORs recorded increased rates of morbidity during 1945 from venereal diseases, skin diseases and digestive diseases other than diarrhoea. Typhus was particularly severe in 1944. Increase in T. B. incidence in 1945 is also noteworthy.

Average number daily sick was 417 in 1944 and only 28 in 1945.

TABLE 26

Admissions to Hospitals—Annual rates per 1,000 strength: EAORs: SEAC (Indo-Burma Front).

Diseases				1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever	..	..	..	0.19
	Dengue	..	..	0.88	0.24
	Dysentery	..	..	85.36	37.89
	Enteric group of fevers	..	..	0.31	0.10
	Hepatitis	..	..	3.13	4.61
	Malaria	..	..	50.32	10.04
	Major septic diseases	..	..	0.40	0.62
	Minor septic diseases	..	..	17.12	11.62
	Mumps	..	..	0.31	0.34
	Scabies	..	..	1.14	2.11
	Smallpox	..	..	0.18	0.14
	Tuberculosis	..	..	0.17	0.77
	Trachoma	..	..	0.22	0.15
	Typhus fever	..	..	10.26	1.87
	Venereal diseases	..	..	30.50	62.19
	Total	..	..	200.31	132.89

TABLE 26—(Contd.).

Diseases			1944	1945
(2)	<i>Mental, Psychoneurotic and Personality disorders</i>			
	Mental diseases		3·61	6·48
(3)	<i>Diseases of the Nervous system and Sense organs</i>			
	ENT diseases		5·90	5·33
	Eye diseases other than trachoma		6·21	5·95
	Total		12·11	11·29
(4)	<i>Diseases of the Circulatory system</i>			
	Rheumatic fever		0·04	1·44
	Other circulatory diseases		2·51	1·97
	Total		2·55	3·41
(5)	<i>Diseases of the Respiratory system</i>			
	Common cold		13·47	3·99
	Tonsillitis		1·41	1·54
	Influenza		0·04	0·05
	Pneumonia		7·62	6·05
	Other respiratory diseases		27·73	19·26
	Total		50·27	30·88
(6)	<i>Diseases of the Digestive system</i>			
	Diarrhoea		21·97	7·54
	Other digestive diseases		9·33	12·68
	Total		31·30	20·22
(7)	<i>Diseases of the Skin and Cellular tissue</i>			
	Skin diseases		9·73	18·83
(8)	<i>Symptoms, Senility and Ill-defined conditions</i>			
	NYD fever		57·63	9·22
	PUO		0·31	3·17
	Total		57·94	12·39
(9)	<i>All other diseases</i>		64·71	81·40
(10)	<i>All diseases</i>		432·53	317·78
(11)	<i>Accidents poisoning and violence (non-battle injuries)</i>			
	Burns and scalds		1·45	1·54
	Other local injuries		22·06	38·18
	Total		23·51	39·72
(12)	<i>Accidents, poisoning and violence (battle injuries)</i>			
	Injuries caused by blast		0·04	0·05
	Bomb wounds		7·04	2·35
	Gunshot wounds		18·18	10·66
	Shell wounds		0·97	2·74
	Total		26·24	15·80
(13)	<i>All cases</i>		482·28	373·31
(14)	<i>Average daily sick, per 1,000</i>			
	(i) Sickness		18·35	1·27
	(ii) War wounds		1·53	0·03
	(iii) Total		19·88	1·30

TABLE 27

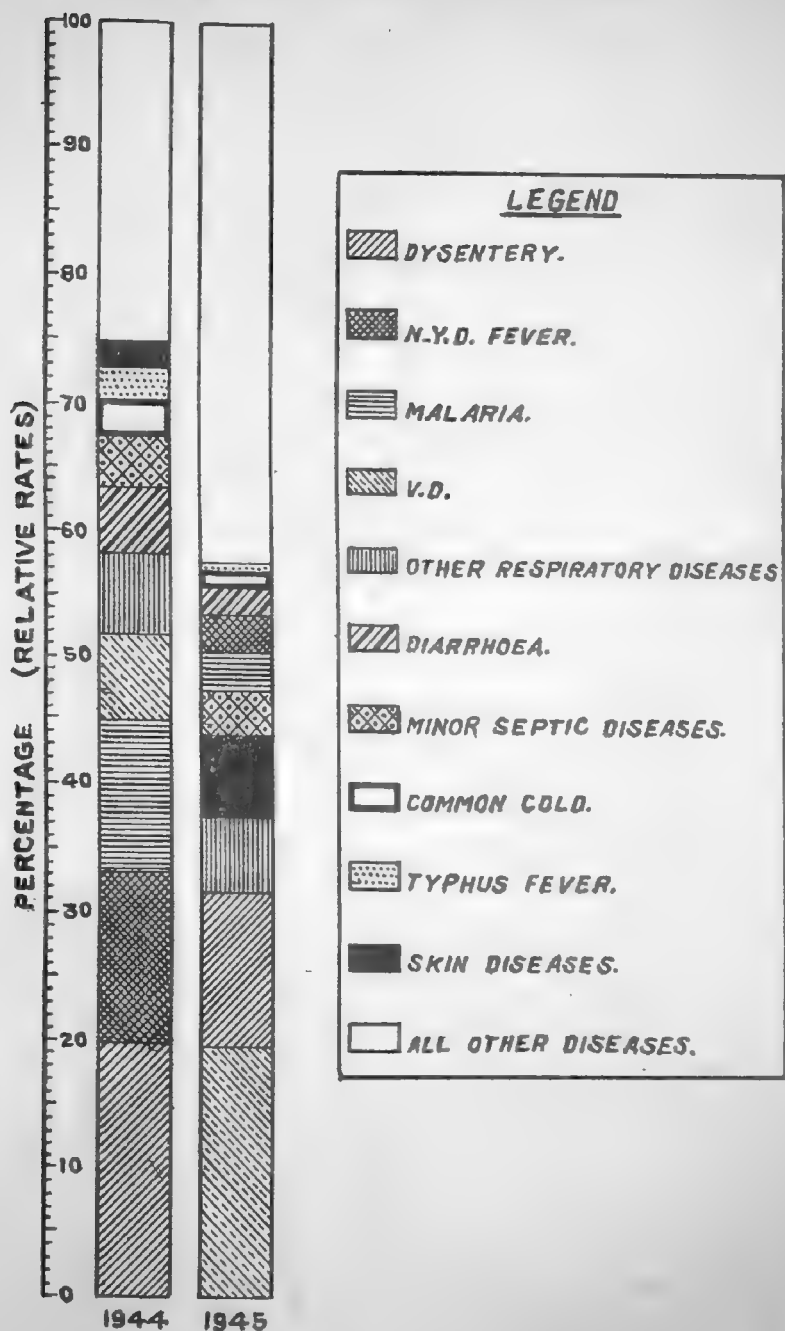
Relative morbidity rates: EAORs: SEAC (Indo-Burma Front).

Diseases			1944	1945
(1)	<i>Infective and Parasitic diseases</i>			
	Cerebrospinal fever	.. ..	..	0.06
	Dengue	.. ..	0.20	0.08
	Dysentery	.. ..	19.74	11.92
	Enteric group of fevers	.. ..	0.07	0.03
	Hepatitis	.. ..	0.72	1.45
	Malaria	.. ..	11.63	3.16
	Major septic diseases	.. ..	0.09	0.20
	Minor septic diseases	.. ..	3.96	3.66
	Mumps	.. ..	0.07	0.11
	Scabies	.. ..	0.26	0.66
	Smallpox	.. ..	0.04	0.04
	Tuberculosis	.. ..	0.04	0.24
	Trachoma	.. ..	0.05	0.04
	Typhus fever	.. ..	2.37	0.59
	Venereal diseases	.. ..	7.05	19.57
	Total	.. ..	46.31	41.82
(2)	<i>Mental, Psychoneurotic and Personality disorders</i>			
	Mental diseases	.. ..	0.83	2.04
(3)	<i>Diseases of the Nervous system and Sense organs</i>			
	ENT diseases	.. ..	1.36	1.68
	Eye diseases other than trachoma	.. ..	1.43	1.87
	Total	.. ..	2.80	3.55
(4)	<i>Diseases of the Circulatory system</i>			
	Rheumatic fever	.. ..	0.01	0.45
	Other circulatory diseases	.. ..	0.57	0.62
	Total	.. ..	0.58	1.07
(5)	<i>Diseases of the Respiratory system</i>			
	Common cold	.. ..	3.11	1.25
	Tonsillitis	.. ..	0.32	0.48
	Influenza	.. ..	0.01	0.01
	Pneumonia	.. ..	1.76	1.90
	Other respiratory diseases	.. ..	6.41	6.06
	Total	.. ..	11.62	9.71
(6)	<i>Diseases of the Digestive system</i>			
	Diarrhoea	.. ..	5.08	2.37
	Other digestive diseases	.. ..	2.16	3.99
	Total	.. ..	7.24	6.36
(7)	<i>Diseases of the Skin and Cellular tissue</i>			
	Skin diseases	.. ..	2.25	5.92
(8)	<i>Symptoms, Senility and Ill-defined conditions</i>			
	NYD fever	.. ..	13.32	2.90
	PUO	.. ..	0.07	1.00
	Total	.. ..	13.39	3.89
(9)	<i>All other diseases</i>			
		.. ..	14.96	25.62
(10)	<i>All diseases</i>			
		.. ..	100.00	100.00

INDO-BURMA FRONT

RELATIVE IMPORTANCE OF MAJOR DISEASES

IN ALL DISEASES E.A.O.Rs. 1944-1945



(SEE TABLE 27)

INDO-BURMA FRONT
INCIDENCE (RATE PER 1000) OF MALARIA AND DYSENTERY
AMONG THE BRITISH OFFICERS 1942-1945

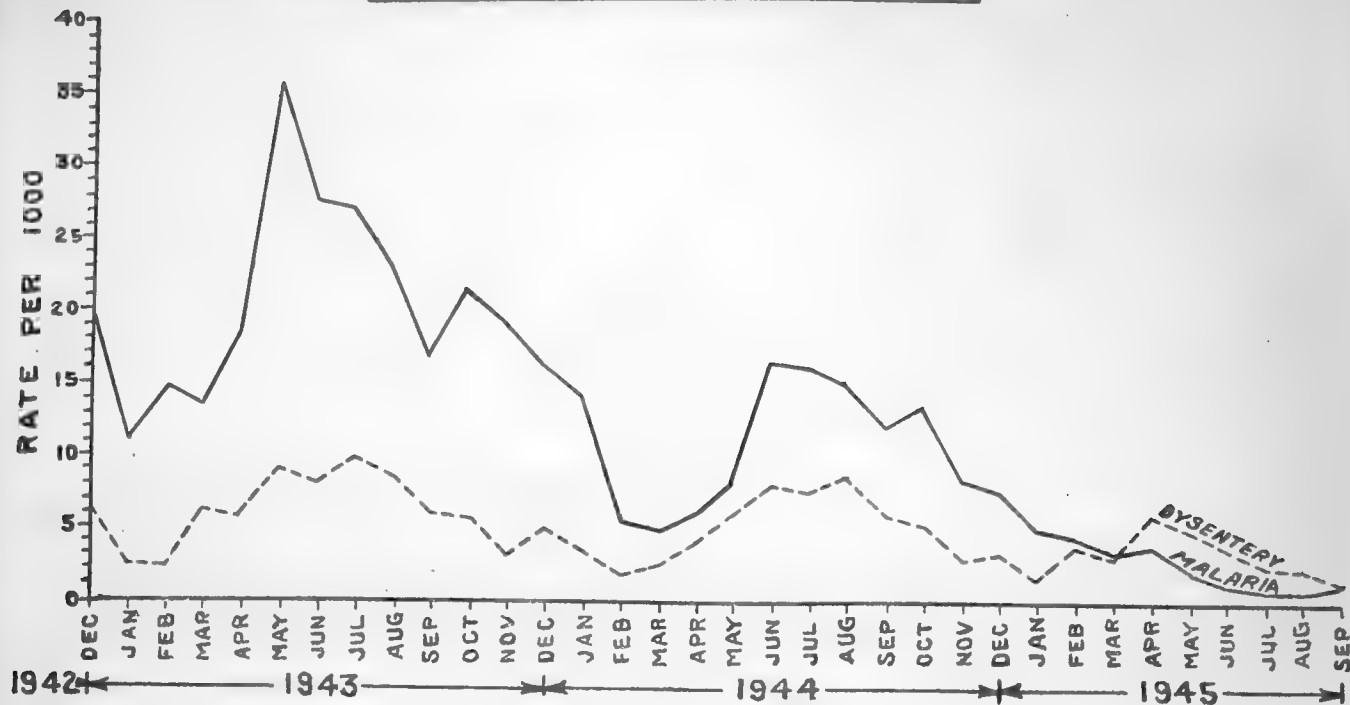


TABLE 28

Relative casualty rates: EAORs: SEAC (Indo-Burma Front).

Specialist groups	1944	1945
(1) Infective and parasitic diseases ..	41·53	35·60
(2) Mental, psychoneurotic and personality disorders	0·75	1·74
(3) Diseases of the nervous system and sense organs	2·51	3·02
(4) Diseases of the circulatory system ..	0·53	0·91
(5) Diseases of the respiratory system ..	10·43	8·26
(6) Diseases of the digestive system ..	6·49	5·42
(7) Diseases of the skin and cellular tissue ..	2·02	5·04
(8) Symptoms, senility and ill-defined conditions	12·01	3·32
(9) All other diseases	13·42	21·81
(10) All diseases	89·69	85·13
(11) All battle injuries	5·44	4·23
(12) All non-battle injuries	4·87	10·64
(13) All cases	100·00	100·00

Section IX

BRITISH OFFICERS

In this Section all British officers, attached to British, Indian, West African or East African units, are included.

By far the most important cause of sickness among the British officers, on this front, was malaria. Its absolute rates were 262 in 1942, 221 in 1943, 123 in 1944 and 23 in 1945. These are the lowest rates shown by any category of troops, including British Other Ranks, except the Africans. The corresponding rates for VCOs and IORs were more than double of these rates for most of the period (Table 1). During 1945 malaria registered a rate of 51 per 1,000 among the VCOs & IORs. This rate was 1/6th of the 1944 rate for them and yet it was $2\frac{1}{4}$ times of the corresponding rate for the British officers in that year. Figures of absolute rate from malaria given above show a falling rate of sickness among the British officers. A fall of 16 per cent. on the 1942 rate was observed in 1943, of 44 per cent. over the previous years in 1944 and of 81 per cent. in 1945. During the last two years the changes in these rates have been statistically significant. Over the whole period the rate got reduced to less than 1/11th from what it was in 1942 (Table 29). Looking at them from another angle it can be stated that about 26 out of every 100 British officers suffered from malaria during 1942 but only a little more than 2 out of every 100 of them during 1945. In terms of relative rates, however, (Table 30) malaria may be stated to have been responsible for 37 out of every 100 British officers sick during 1942, 30 out of every 100 sick in 1943, 24 out of every 100 sick in 1944 and only 9 out of every 100 sick in 1945. Like absolute rates, these rates are generally lower each year than the corresponding rates for any other important category of personnel, except the Africans. From the low malaria incidence among the British officers it can, therefore, be averred that most of the high malaria incidence of other troops, particularly during the later years of this period was at any rate avoidable. To the extent that any category slackened in the observance of malaria discipline it seems also to have registered higher rates than the British officers rates. Monthly malaria rates for the British officers are given on the next page. They at once show each year increased incidence from this disease once during April to July and again during October-November, as was seen in the case of VCOs and IORs. Another interesting point which can be gathered from these figures is about the lowering in these rates from year to year. It will be seen that monthly rates in 1944 are very much lower than the corresponding rates during the months in 1943 and the rates in individual months of 1945 are again consistently lower than those in 1944. Over the period taken as a whole malaria incidence seems to have shown a steep fall. The highest rate of 35.6 per 1,000 was recorded in May 1943 and the lowest of 0.7 per 1,000 in August 1945.

The rates of incidence due to malaria among British officers of the Army in India were 118 in 1942, about 119 during 1943, 105 in

Monthly incidence rate per 1,000 of strength of malaria.

Month			1942	1943	1944	1945
January	..	..		11.0	13.8	4.8
February	..	..		14.8	5.2	4.3
March	..	..		13.2	4.7	3.2
April	..	..		18.5	6.0	3.9
May	..	..		35.6	7.8	2.0
June	..	..		27.2	16.3	1.2
July	..	..		27.0	16.0	1.0
August	..	..		22.4	14.8	0.7
September	..	..		16.7	11.8	1.2
October	..	..		20.8	13.0	
November	..	..		19.1	8.1	
December	..	..	19.7	16.0	7.4	

1944 and 53 during 1945. It will be seen that the rates for 1942, 1943 and 1944 in India were lower than the corresponding rates on this front but those for the year 1945 were higher in India. Factors that were responsible for the higher malaria rate in India and which also affected the total sick rates in India, during 1944 and 1945, as enumerated in the annual reports on the Health of the Army in India⁹ were:—

- (i) The continued and increasing strain of a war waged on the borders of India.
- (ii) The presence in large numbers of Indian civilian labour, whose living and sanitary standards were very low and who were particularly infected with malaria, in close proximity to the forces furnished an ever present source of infection.
- (iii) The great expansion of camps for British troops in malarious areas outside the cantonments. The best sites for training the troops in jungle warfare were also intensely malarious.
- (iv) The return to India of units from highly malarious regions where the Fourteenth Army troops were located, "produced a large crop of relapse malaria" in India. Although this malaria had been contracted outside India the admission to hospital for the relapse cases went to swell its incidence in India. "*It is probable*", says the Report, "*that among British troops at least one-third possibly even one half, of all admissions to hospitals for malaria in peace areas in India in 1944 were originally contracted in operational areas*".
- (v) The retention in India of category "C" personnel.

The next important cause of sickness among the British officers was dysentery. Its rates per 1,000 in the four years were 82 in 1942; 73 in 1943; 57 in 1944 and 28 in 1945. These rates are very much lower than the corresponding dysentery rates for the BORs, which were 88, 132, 97 and 49 per 1,000 respectively in the four years. They are, however, much higher than similar rates for the Indian troops. It will be seen that British officers suffered from a declining rate of morbidity due to

⁹ Report for the year 1944 by Medical Directorate, GHQ(I).

dysentery on this front. Its incidence was fairly high among British officers during 1942 and 1943. It registered a fall of 22 per cent. in 1944 over the rate in 1943. It was reduced during 1945 to about 1/3rd of the rate in 1942. This was made possible by various preventive measures adopted to check the spread of this disease and large scale use of sulpha drugs. Figures of monthly incidence of dysentery among the British officers as far as available are given below:—

Monthly incidence rate per 1,000 strength of dysentery.

Month	1942	1943	1944	1945
January		2.5	3.4	1.6
February		2.4	1.8	3.8
March		6.2	2.4	3.0
April		5.6	4.0	5.8
May		8.8	5.8	4.9
June		7.7	7.8	3.6
July		9.6	7.5	2.2
August		8.1	8.1	2.2
September		5.7	5.5	1.4
October		5.5	5.0	
November		3.0	2.8	
December	6.3	4.8	3.3	

As between the months in a year, these figures show higher rates of morbidity during April to August each year. They also show that the rate of about 10 per 1,000 registered in July 1943 never repeated itself and the lowest rate of 1.4 per 1,000 was observed for the first time during September 1945. Unlike malaria, dysentery did not show evenly falling rates from month to month over the period taken as a whole. The peak rates during the three years did register such a state of affairs but not the whole series of rates. For instance, there were eight months in 1943 which showed rates higher than 5 per 1,000. During 1944 also there were as many as six months registering similar rates. The incidence of this disease, however, during 1945 was on a subdued scale. Even then the variance during the three years would not be greatly different. The average monthly rates, during the three years, were 5.8 per 1,000 in 1943; 4.8 per 1,000 in 1944 and 3.2 per 1,000 in 1945.

It should be of interest here to quote the rates of incidence due to dysentery, among British officers in India at that time. They were 62 per 1,000 in 1942; 53 per 1,000 in 1943; 68 per 1,000 in 1944 and 63 per 1,000 in 1945. A comparison with the rates prevalent in Burma will show that, except for 1942 and 1943, all the other rates for British officers were higher in India than for their counterparts on the Indo-Burma front. Some of the reasons for this increased incidence in India are detailed in the relevant report on the Health of the Army in India. They were—

- (i) The presence of civilian Indian labour in close proximity to troops in India, whose living and sanitary standards fell far short

of what was desirable, provided "an ever-present source of infection" to the troops.

- (ii) The return to India of units from operational areas in Assam and Burma to recuperate, who were infected with various diseases, including bowel diseases.
- (iii) The retention in the army of category "C" and to less extent category "B" personnel.

In terms of its relative rates, dysentery was always responsible for about 11 per cent. of all sickness among British officers (Table 30). The rates during 1944 and 1945 (when absolute rate of incidence was registering steep fall) indicated an even rate of relative importance of dysentery among diseases. Evidently the fall in admissions due to other diseases during these years was heavier than the fall in dysentery admission.

Digestive diseases (including diarrhoea) also caused high admissions among British officers. The rates of incidence per 1,000 of strength due to them in the four years were 82, 84, 72 and 27 respectively. These rates are higher than the corresponding figures for dysentery each year, showing the great magnitude of illness caused by them. Diarrhoea, among them, was responsible for about 35 per cent. admissions in 1942; 43 per cent. in 1943; 58 per cent. in 1944 and 55 per cent. in 1945. These figures indicate that diarrhoea, among the digestive diseases, was the most important single cause of admissions. Its seasonal distribution corresponded to that of dysentery as can be seen from its monthly rates of incidence given below:—

Monthly incidence rate per 1,000 strength of diarrhoea.

Month	1942	1943	1944	1945
January		2.2	1.0	0.9
February		1.4	1.3	1.0
March		0.9	2.0	2.4
April		2.2	2.6	3.1
May		4.0	4.4	1.8
June		5.5	8.8	3.2
July		7.2	7.9	1.4
August		5.5	5.1	0.6
September		2.4	3.6	0.9
October		2.2	1.9	
November		1.8	1.1	
December	1.8	1.7	1.4	

According to these figures higher rates of incidence prevailed during the months of May to August each year. It has already been mentioned earlier in this chapter that an epidemic of dysentery and diarrhoea occurred among the troops of the Eleventh Army Group in the middle of 1944. This fact seems to be reflected in the rates given above also, wherein the highest rates of 8.8 per 1,000 and 7.9 per 1,000, recorded

ever by this disease, were in June and July 1944. Thereafter the severity of incidence seems to have gradually declined. The lowest rate of 0·6 per 1,000 was observed in August 1945.

The varying nature and seriousness with which diarrhoea seems to have been prevalent may be gauged from its relative rates also (Table 30). It caused 4 per cent. of all sickness among British officers in 1942; 5 per cent. in 1943; 8 per cent. in 1944 and 6 per cent. in 1945.

An important observation is deducible from a comparison of the diarrhoea incidence in Burma with its incidence among British officers of the Indian Army in India. The relevant figures were 104, 62, 68 and 52 per 1,000 strength, respectively. It shows that the diarrhoea rate in Burma was about 1/4th of that in India in 1942; about 3/5th during 1943 and 1944; and between 1/3rd to 1/4th of the Indian rate in 1945.

Minor septic diseases caused about as much sickness among the British officers as that caused by diarrhoea. British officers, however, suffered from them at a lower rate than the VCOs and IORs. NYD fever and PUO jointly were responsible during the four years for rates of 21, 31, 50 and 15 per 1,000 respectively. The drop in 1945 is worthy of notice which, it may be seen, corresponds to the steep drop in malaria rate also. Skin diseases, like malaria, caused lower sickness among the British officers during the four years than that caused by them among other categories of troops, except the Africans. As between the BOs and BORs, the rate for the latter each year was more than twice that for the former. That skin diseases were mainly caused by the special conditions prevailing in Burma is apparent from the fact that no sickness due to them was reported among the British officers of the Indian Army in India.

Dengue and venereal diseases seem to have behaved in quite a special manner in their effect on various categories of troops on this front. Dengue seems to have affected the British troops more than the Indian or African troops. The differences in their annual rates are well marked as will be seen from the following figures:—

Rates of incidence per 1,000 Strength from Dengue among various categories of troops, in Burma and SEAC.

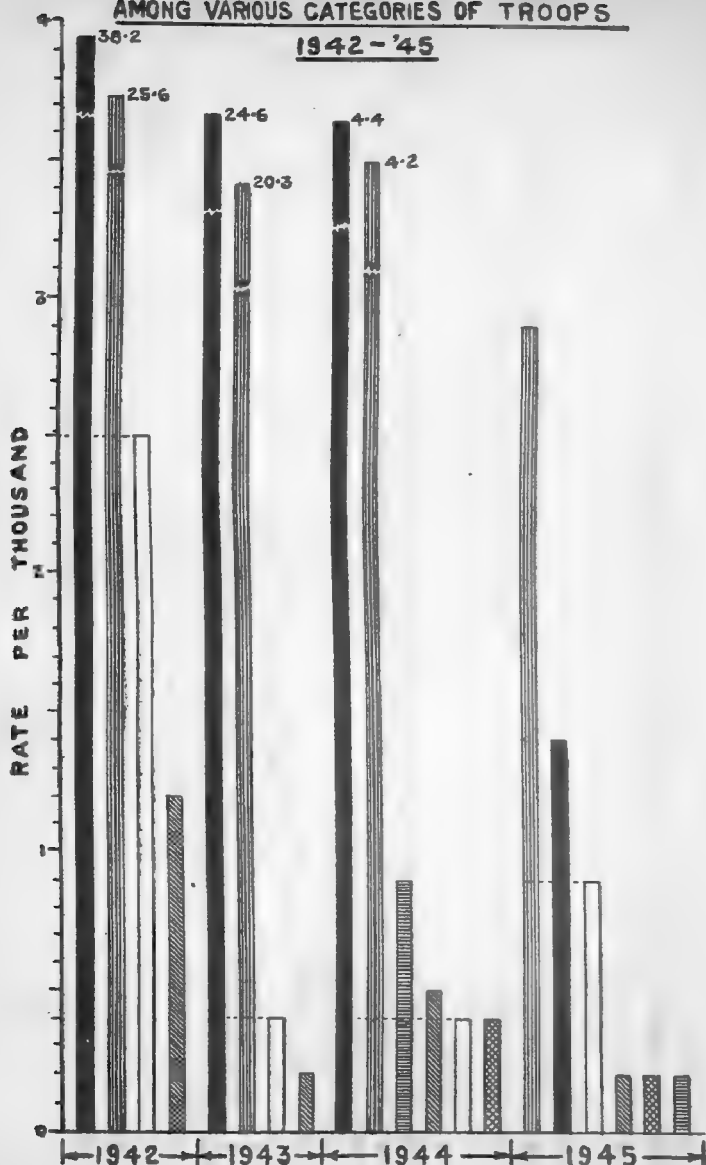
		1942	1943	1944	1945
British Officers..	..	25·6	20·3	4·2	2·9
BORs ..	..	38·2	24·6	4·4	1·4
VCOs and IORs	..	2·5	0·4	0·4	0·9
NCs(E) ..	..	1·2	0·2	0·5	0·2
WAORs ..	..	..	..	0·4	0·2
EAORs ..	..	..	..	0·9	0·2

These figures show that throughout the period British troops suffered at greater rates from this disease than the others. The difference between them, during the first two years, was markedly great and significant. Great also was the fall in its incidence among the British troops from

INDO-BURMA FRONT

COMPARATIVE INCIDENCE OF DENGUE AMONG VARIOUS CATEGORIES OF TROOPS

1942-'45



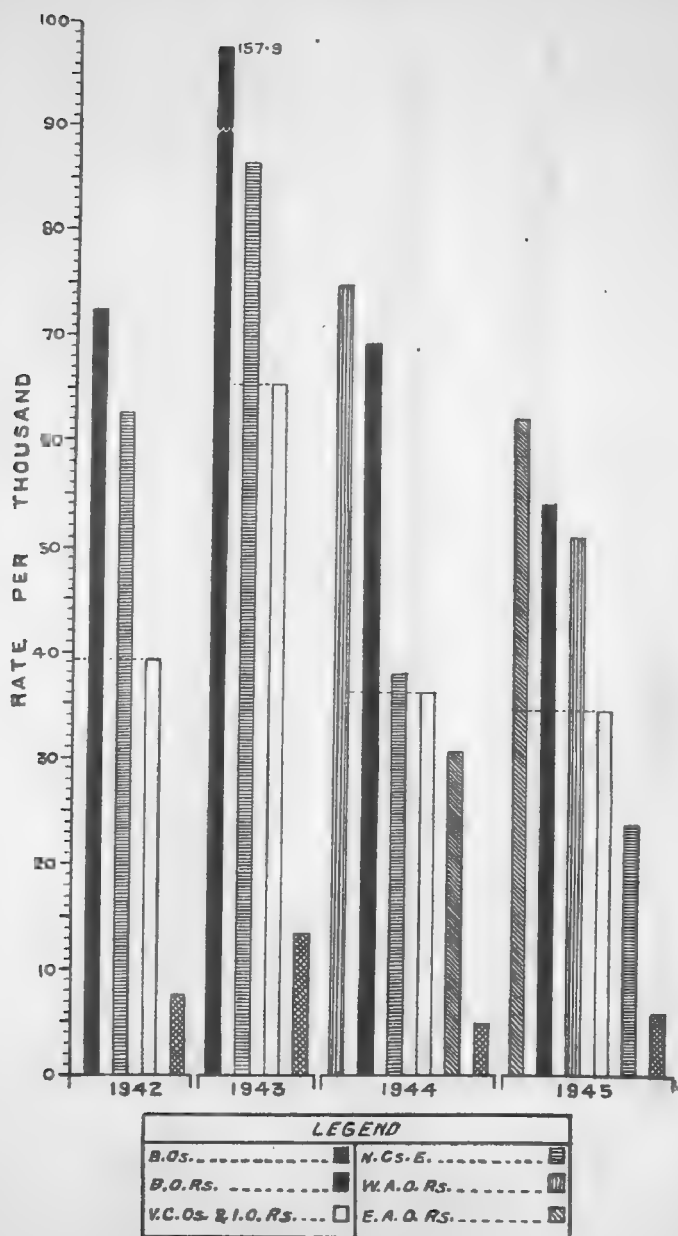
LEGEND			
B.Os.		N.Cs.(E)	
B.O.Rs.		W.A.O.Rs.	
V.C.Os. & I.O.Rs.		E.A.O.Rs.	

NOTE:- DOTTED LINE INDICATES THE RATE FOR V.C.Os. AND I.O.Rs. IN EACH CASE.

INDO-BURMA FRONT

COMPARISON OF ABSOLUTE INCIDENCE OF V.D. AMONG VARIOUS CATEGORIES OF TROOPS

1942-'45



NOTE:— DOTTED LINE INDICATES THE RATE
FOR V.C.Os & I.O.Rs. IN EACH CASE.

1944 onwards when it was reduced to only 1/5th of what it was in 1943. A further fall by 1/3rd was also recorded in 1945.

Among the British officers venereal diseases caused sickness of a very much lower order than that among any other category. This difference will be noticed in the figures given below:—

Rate of incidence due to VD among various categories of troops on Indo-Burma Front and SEAC.

	1942	1943	1944	1945
BOs	7.7	13.5	4.4	6.0
BORs	72.2	157.9	69.2	54.1
VCOs and IORs	39.2	65.7	36.3	34.5
NCs(E)	62.4	86.8	38.0	23.6
WAORs .. ..	..	..	75.0	51.4
EAORs .. ..	..	..	30.5	62.2

Hepatitis and tonsillitis were also responsible for higher sickness among British troops than among others. ENT diseases caused sickness among the British officers at an average rate of 13 per 1,000 during this period.

Diseases in Tables 29 and 30 will now be considered in three broad groups for the purpose of comparison. Cholera, enteric group of fevers, major septic diseases and smallpox will form one group; tuberculosis, mental diseases, eye diseases, influenza and pneumonia will form the second group; and diphtheria, oriental sore, sandfly fever, scabies, heat effects and typhus the third group. Comparing the absolute rates of incidence of the diseases included in the first group between the British officers and VCOs and IORs, it will be seen that BOs suffered less from eye diseases and tuberculosis than VCOs and IORs during the whole period. The difference between them for eye diseases was particularly marked from year to year. These diseases were about twice more prevalent among the VCOs and IORs during 1942 and 1945, but about six times more so during 1943 and 1944. On the whole, eye diseases were recording declining absolute rates till 1944 among the British officers but showed some increase in 1945. Influenza registered falling rates throughout the period but pneumonia kept on increasing among the BORs. When compared with rates for VCOs and IORs, these diseases failed to indicate unidirectional tendency to variate. For instance, influenza was more prevalent in the BOs than among the VCOs and IORs during 1942, but it caused higher sickness among the latter than among the former during 1943. Similar was the case with pneumonia. The extent of greater incidence was, however, not the same between these personnel from year to year. Mental diseases recorded increasing rates of incidence from year to year for the BOs.

Cholera was practically non-existent among the BOs. Enteric group of fevers recorded low declining incidence over the period. Their

rates were consistently higher than those for the VCOs and IORs. Major septic diseases and smallpox were prevalent at about even rates among both the categories, except in 1942, when smallpox took a heavier toll from BOs. It will be seen that none of the diseases in this group was responsible for an absolute high morbidity in any of the categories.

Among the diseases in the third group, oriental sore caused sickness in 1943 only, at a rate of 0.2 per 1,000 of strength. Sandfly fever, heat stroke and heat exhaustion recorded declining incidence over the period, but rates each year were higher than the rates for VCOs and IORs. The incidence of scabies among the BOs was remarkably low. It has already been described that skin diseases, due probably to their greater personal care, were prevalent among the British officers at lower rates than among the VCOs and IORs. The extent of lower incidence from scabies among the BOs is, however, well marked. It was about 1/40th of the rate for VCOs and IORs in 1942; 1/16th in 1943; 1/8th in 1944 and 1/5th in 1945. It will be remembered that such wide divergence in the two rates was observed in the case of dengue only. Typhus rates for BOs declined from year to year. They were higher than the rates for VCOs and IORs during 1943 and 1944 but lower in 1945. Monthly rates of incidence from this disease are given below. It will be seen that these figures do not convey much useful meaning and are haphazardly spread. They do show a seven to eight fold increased incidence during October and December 1944 over the average incidence during the rest of the period. These rates are based on total typhus sickness against total strength of the BOs. They are not at all indicative of the rates for the population at risk only. It is in figures of this type that the real potentiality of this disease to cause sickness is hidden.

Monthly incidence rate per 1,000 strength of typhus fever.

Month			1943	1944	1945
January ..	..	..	0.2	..	0.1
February ..	..	..	0.2	0.1	0.2
March ..	..	..	0.1	..	0.0
April ..	..	..	0.1	..	0.1
May ..	..	..	0.1	0.1	..
June ..	..	..	0.1	0.2	0.1
July ..	..	..	0.1	0.1	..
August ..	..	..	..	0.1	0.1
September ..	..	..	0.2	0.1	0.1
October ..	..	..	0.2	0.8	
November ..	..	..	0.1	0.3	
December ..	..	..	0.3	0.9	

On the whole, out of every 1,000 BOs 748 suffered from one or the other cause during 1942. Out of these 748 BOs about 714 or 95 per cent. were confined to bed from sickness only; 0.6 per cent. due to

war wounds and 4 per cent. due to non-enemy action injuries of one kind or another. These figures show that the whole of this heavy suffering was due to non-enemy action. Enemy action injuries increased greatly in later years, e.g. their rates were 15 per 1,000 in 1943; 56 per 1,000 in 1944 and 31 per 1,000 in 1945. In Burma, 1944 was the year of severe fighting, which is borne out by these figures also. Enemy action was responsible for about 10 per cent. of all casualties during 1944 and 1945. As elsewhere, an increasing rate of injuries due to enemy action was accompanied among the BOs with a greatly declining rate of incidence due to diseases. For instance, the incidence of injuries due to enemy action increased from 4.7 per 1,000 in 1942 to 15.3 per 1,000 in 1943; to 55.7 per 1,000 during 1944 and 31 per 1,000 in 1945. After taking into account the rates of fall registered by individual diseases during the period, it may be stated that more than 2/3rds of this decline was due to huge fall in the rates of dysentery, diarrhoea and malaria. It is probably due to heavy falls in them, again, that the relative contribution of diseases to total casualties was recorded as 95 per cent. in 1942; 94 per cent. in 1943; 86 per cent. in 1944 and only 82 per cent. in 1945 (Table 31). As between the different groups of diseases, infective and parasitic diseases accounted for 58 per cent. of all casualties in 1942 and for less than one-third of all casualties in 1945. It will be seen that this group includes malaria and dysentery among the constituent morbid conditions. The other important group of diseases in this table, from the point of view of percentage contribution to total casualties, is digestive diseases. They include "diarrhoea" and "other digestive diseases". Their share always remained between 9 and 12 per cent. to the total.

The casualty rate per 1,000 of strength from all causes among BOs was 748.4 in 1942; 773.8 in 1943; 608.2 in 1944 and only 312.4 in 1945. These figures indicate an overall fall of 60 per cent. from the highest figure in 1943 to the lowest in 1945.

In the latter two years the reduction in rates is statistically significant also. In terms of average number daily sick the fall is still more remarkable. From an average figure of about 30 BOs daily hospitalised from all causes in 1943, there was only one BO so hospitalised in 1945. The corresponding figures for sickness alone were 29 and 1 respectively during the two years.

The pattern of general and specific morbidities suffered by the BOs and by all British troops on this front was identical, as can be seen from a comparison of the relevant tables.

CONCLUSION

Malaria was the most important single cause of sickness. Its absolute rate was reduced to less than 1/11th in 1945 from what it was in 1942. Other important causes were, in order; dysentery, digestive diseases, minor septic diseases, NYD fever, hepatitis, skin diseases, dengue and venereal diseases. Generally, all of them showed declining rates over the period except NYD fever and skin diseases. British troops

suffered comparatively at higher rates from dengue than other troops. Reverse was true of venereal diseases. Hepatitis and tonsillitis were also prevalent at greater rates among the British troops than among others. In terms of actual admissions, BOs are shown to have registered the following figures:—

Actual admissions among British officers on Indo-Burma Front.

			1942	1943	1944	1945
All causes	..	..	3,480	8,674	9,780	5,536
All diseases	..	..	3,318	8,137	8,383	4,566
Malaria	..	..	1,217	2,474	1,986	402
Dysentery	..	..	382	818	910	500

For every injury due to enemy action there were 158 sick admissions in 1942; 50 sick admissions in 1943; 10 in 1944 and only 9 in 1945.

TABLE 29

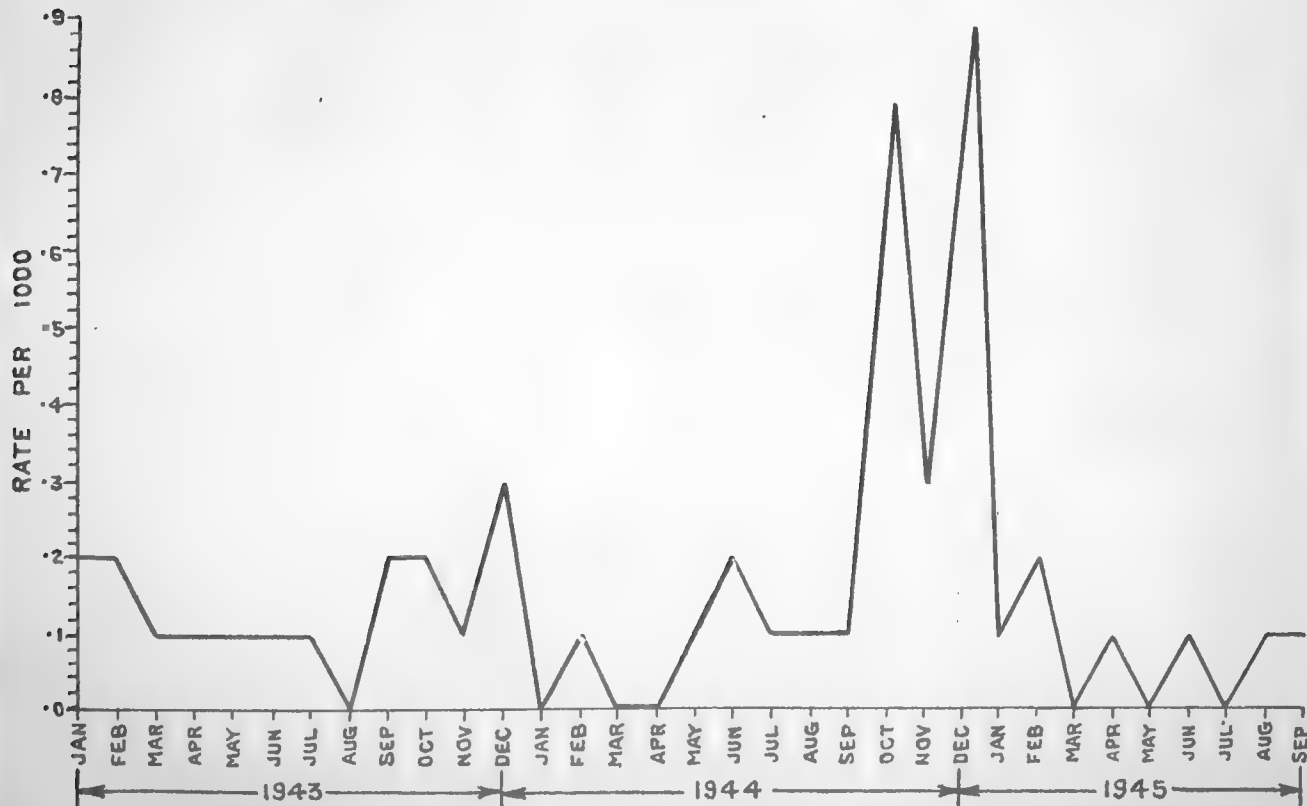
*Admissions to Hospitals—Annual rates per 1,000 strength: British officers:
SEAC (Indo-Burma Front).*

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	..	0·18	0·12	0·11
Cholera .. ..	..	0·36	..	..
Dengue	25·59	20·25	4·23	2·93
Diphtheria ..	0·21	1·25	0·75	0·62
Dysentery	82·15	72·97	56·58	28·21
Enteric group of fevers	2·80	1·69	0·31	0·51
Hepatitis	10·32	25·34	25·25	17·26
Malaria	261·72	220·71	123·50	22·69
Major septic diseases ..	..	3·92	0·87	0·96
Minor septic diseases ..	34·84	31·22	18·97	16·25
Mumps	0·21	0·71	..	0·34
Oriental sore .. ..	..	0·18	..	..
Poliomyelitis ..	2·80	0·09	0·43	0·11
Sandfly fever ..	3·23	0·89	0·50	0·23
Scabies	0·43	1·69	2·92	1·75
Smallpox	0·86	0·54	0·37	0·51
Tuberculosis ..	1·07	0·89	0·12	0·68
Trachoma .. ..	..	..	0·06	0·06
Typhus fever .. ..	..	2·85	2·80	0·62
Venereal diseases ..	7·74	13·47	4·36	6·04
Total	433·97	399·23	242·15	99·89
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Scurvy .. ..	..	..	..	0·06
(3) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	4·95	6·87	5·41	9·48
(4) <i>Diseases of the Nervous system and Sense organs</i>				
ENT diseases ..	10·97	16·95	14·68	9·14
Eye diseases other than trachoma ..	6·45	2·85	2·49	3·95
Total	17·42	19·80	17·16	13·09
(5) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0·86	0·98	0·25	0·28
Other circulatory diseases	5·81	4·73	1·68	2·03
Total	6·67	5·71	1·93	2·31
(6) <i>Diseases of the Respiratory system</i>				
Common cold ..	5·38	7·49	7·21	4·12
Tonsillitis	10·75	12·58	7·34	5·36

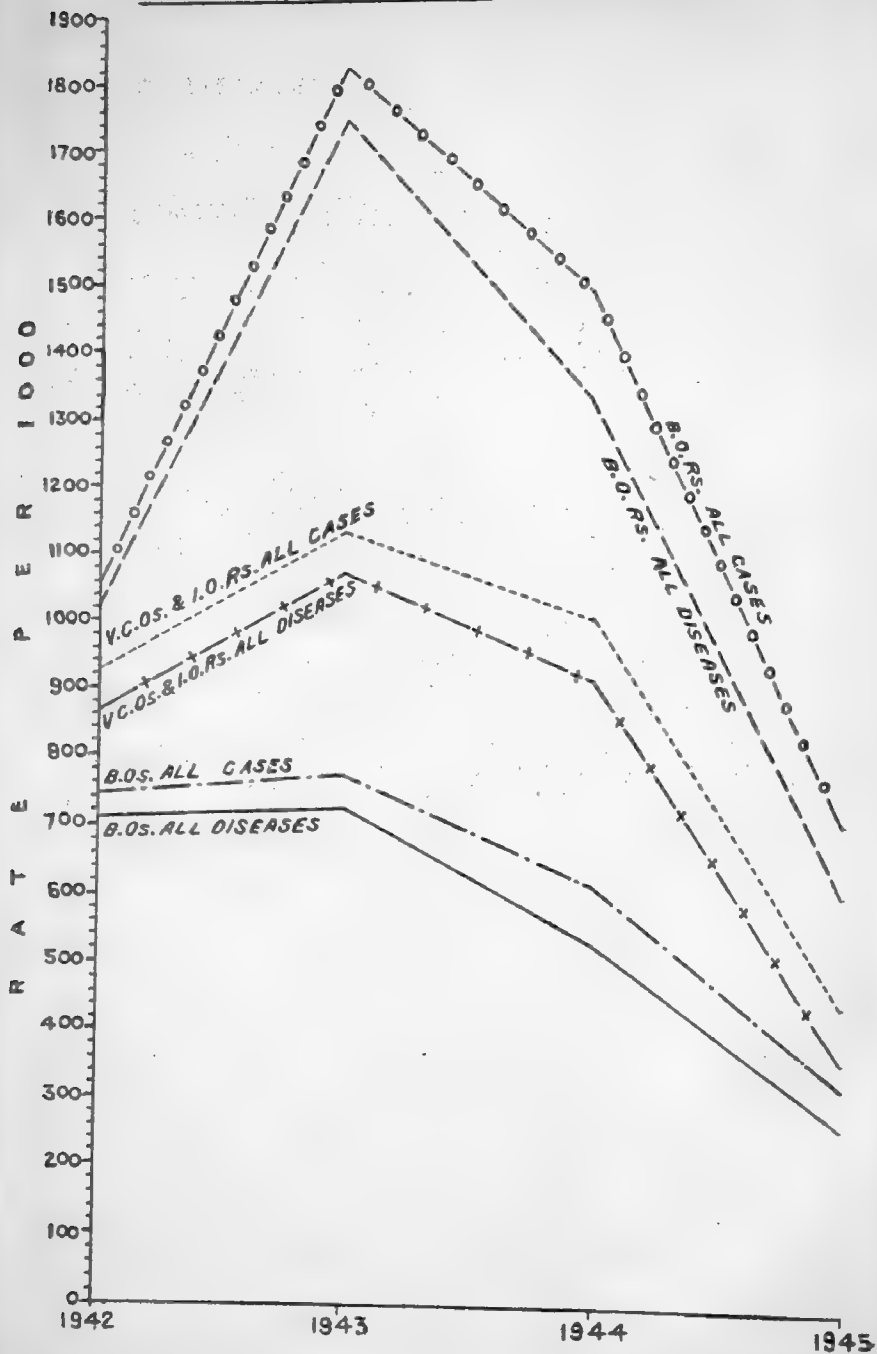
TABLE 29—(Contd.).

Diseases		1942	1943	1944	1945
	Influenza	3·01	3·03	0·87	0·06
	Pneumonia	0·64	..	0·75	0·96
	Other respiratory diseases	10·75	14·81	9·82	6·55
	Total	30·54	37·91	25·99	17·04
(7)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	29·03	36·31	42·22	15·12
	Other digestive diseases	52·69	47·55	30·22	12·41
	Total	81·72	83·86	72·45	27·54
(8)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases	13·55	16·50	14·49	17·38
	Aerolar tissue	1·07	..	..	..
	Total	14·62	16·50	14·49	17·38
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever	9·03	20·34	46·58	12·36
	PUO	11·83	10·62	3·79	2·82
	Total	20·86	30·96	50·37	15·18
(10)	<i>All other diseases</i>	102·79	125·08	91·35	55·70
(11)	<i>All diseases</i>	713·55	725·93	521·30	257·67
(12)	<i>Accidents, poisoning and violence (non-battle injuries)</i>				
	Burns and scalds .. ..	..	..	1·74	1·24
	Other local injuries	30·11	32·56	29·41	22·29
	Total	30·11	32·56	31·15	23·53
(13)	<i>Accidents, poisoning and violence (battle injuries)</i>				
	Injuries caused by blast .. ..	..	..	0·31	0·17
	Bomb wounds	0·86	3·30	12·56	6·71
	Gunshot wounds	3·87	9·99	29·60	17·32
	Shell wounds .. ..	..	2·05	13·24	7·00
	Total	4·73	15·34	55·72	31·21
(14)	<i>All cases</i>	748·39	773·84	608·17	312·41
(15)	<i>Average daily sick per 1,000 strength</i>				
	(i) Sickness .. ..	..	28·92	15·61	0·93
	(ii) War wounds .. ..	..	0·62	1·59	0·14
	(iii) Total .. ..	..	29·54	17·20	1·07

INDO-BURMA FRONT
INCIDENCE (RATE PER 1000) OF TYPHUS B.O.s. (1943-'45)



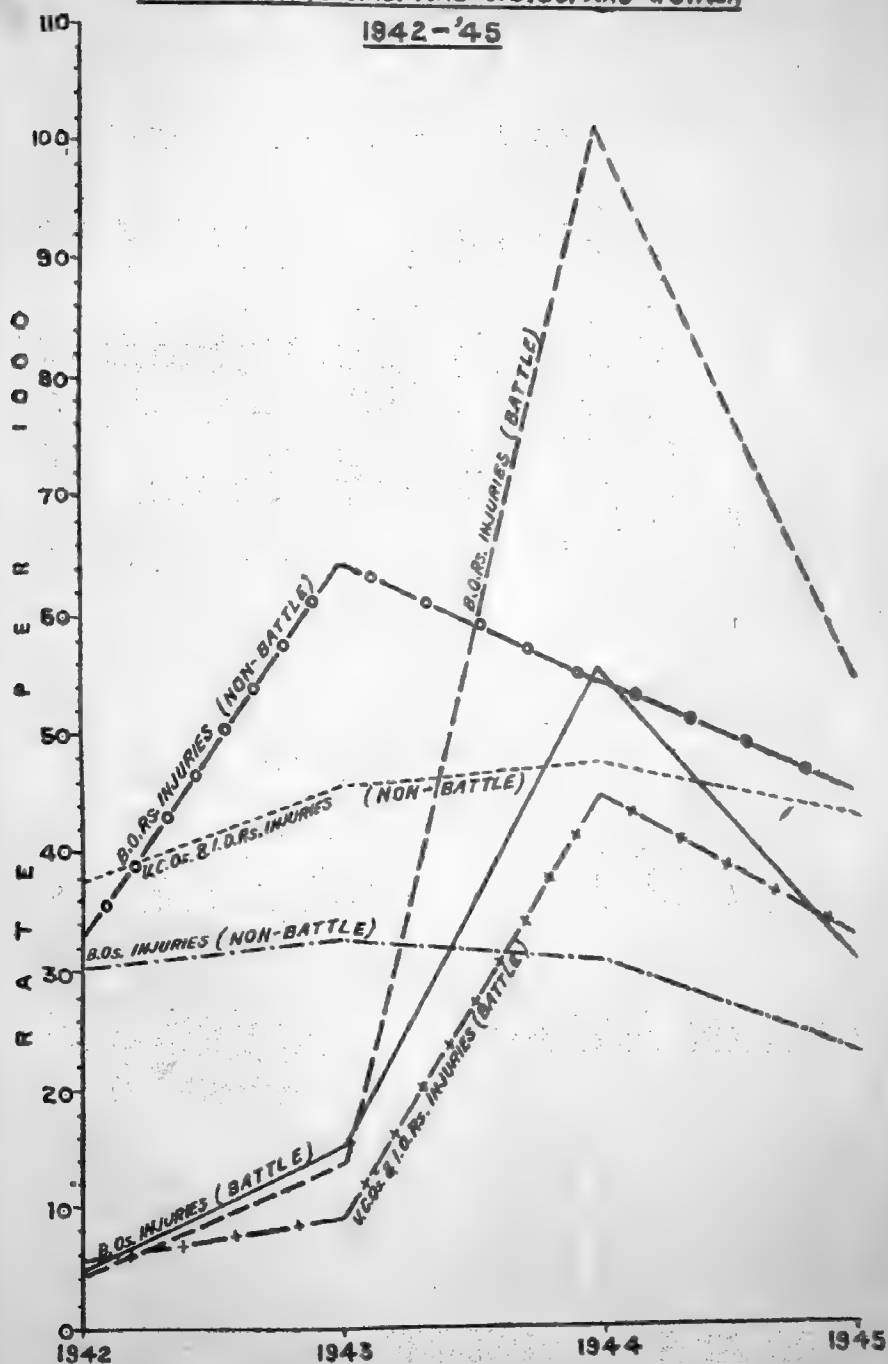
INDO-BURMA FRONT
INCIDENCE (RATE PER 1000) OF 'ALL CASES' AND 'ALL DISEASES'
AMONG B.O.s, B.O.R.s. AND V.C.O.s. & I.O.R.s, 1942-45



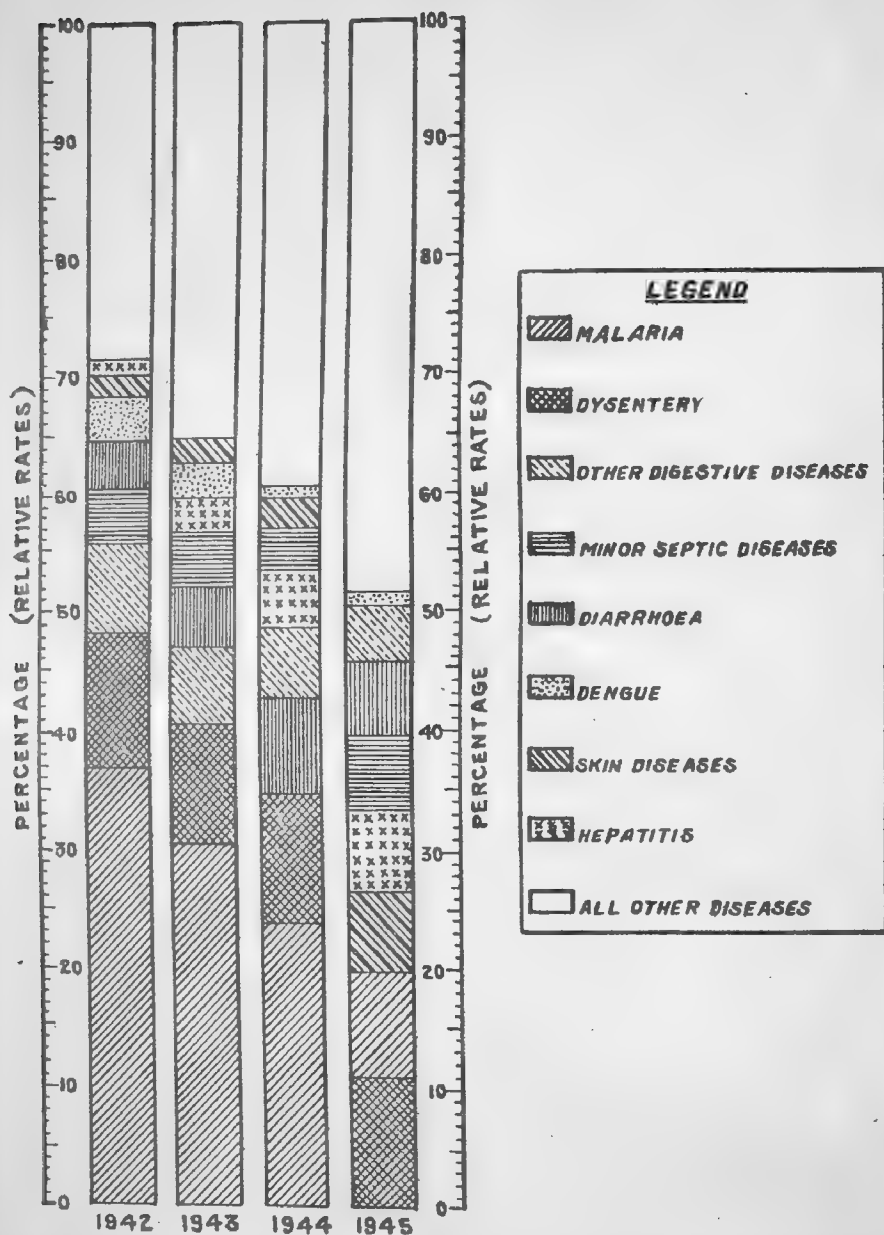
INDO-BURMA FRONT

**INCIDENCE (RATE PER 1000) OF INJURIES, (BATTLE & NON-BATTLE)
AMONG B.O.s., B.O.R.s. AND V.C.O.s. AND I.O.R.s.,**

1942-'45



INDO-BURMA FRONT
RELATIVE IMPORTANCE OF MAJOR DISEASES
IN ALL DISEASES, BRITISH OFFICERS
1942-45



(SEE TABLE 30)

TABLE 30

Relative morbidity rates: British officers: SEAC (Indo-Burma Front).

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	..	0.02	0.02	0.04
	Cholera .. ..	..	0.05	..	..
	Dengue	3.59	2.79	0.81	1.14
	Diphtheria	0.03	0.17	0.14	0.24
	Dysentery	11.51	10.05	10.86	10.95
	Enteric group of fevers ..	0.39	0.23	0.06	0.20
	Hepatitis	1.45	3.49	4.85	6.70
	Malaria	36.68	30.40	23.69	8.80
	Major septic diseases ..	..	0.54	0.17	0.37
	Minor septic diseases ..	4.88	4.30	3.64	6.31
	Mumps	0.03	0.10	..	0.13
	Oriental sore .. ..	..	0.02	..	..
	Poliomyelitis	0.39	0.01	0.08	0.04
	Sandfly fever	0.45	0.12	0.09	0.09
	Scabies	0.06	0.23	0.56	0.68
	Smallpox	0.12	0.07	0.07	0.20
	Tuberculosis	0.15	0.12	0.02	0.26
	Trachoma .. ..	..	..	0.01	0.02
	Typhus fever .. ..	..	0.39	0.54	0.24
	Venereal diseases	1.08	1.86	0.83	2.34
	Total	60.82	54.98	46.45	38.76
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Scurvy .. ..	..	..	..	0.02
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases	0.69	0.95	1.04	3.68
(4)	<i>Diseases of the Nervous system and Sense organs</i>				
	ENT diseases	1.54	2.33	2.81	3.55
	Eye diseases other than trachoma ..	0.90	0.39	0.48	1.53
	Total	2.44	2.73	3.29	5.08
(5)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever	0.12	0.13	0.05	0.11
	Other circulatory diseases	0.81	0.65	0.32	0.79
	Total	0.93	0.79	0.37	0.90
(6)	<i>Diseases of the Respiratory system</i>				
	Common cold	0.75	1.03	1.38	1.60
	Tonsillitis	1.51	1.73	1.41	2.08
	Influenza	0.42	0.42	0.17	0.02

TABLE 30—(Contd.).

Diseases		1942	1943	1944	1945
	Pneumonia ..	0.09	..	0.14	0.37
	Other respiratory diseases ..	1.51	2.04	1.88	2.54
	Total ..	4.28	5.22	4.98	6.61
(7)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	4.07	5.00	8.10	5.87
	Other digestive diseases ..	7.38	6.55	5.80	4.82
	Total ..	11.45	11.55	13.90	10.69
(8)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	1.90	2.27	2.78	6.74
	Aerolar tissue ..	0.15	..	..	..
	Total ..	2.05	2.27	2.78	6.74
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	1.27	2.80	8.93	4.80
	PUO ..	1.66	1.46	0.73	1.09
	Total ..	2.93	4.26	9.66	5.89
(10)	<i>All other diseases</i> ..	14.40	17.23	17.52	21.61
(11)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 31

Relative Casualty rates: British officers: SEAC (Indo-Burma Front).

Specialist Groups		1942	1943	1944	1945
(1)	Infective and parasitic diseases ..	57.99	48.32	39.81	31.97
(2)	Allergic, endocrine system, metabolic and nutritional diseases ..	..	..	..	0.02
(3)	Mental, psychoneurotic and personality disorders ..	0.66	0.89	0.89	3.03
(4)	Diseases of the nervous system and sense organs ..	2.33	2.56	2.82	4.19
(5)	Diseases of the circulatory system ..	0.89	0.74	0.32	0.74
(6)	Diseases of the respiratory system ..	4.08	4.90	4.28	5.46
(7)	Diseases of the digestive system ..	10.92	10.84	11.91	8.81
(8)	Diseases of the skin and cellular tissue ..	1.95	2.13	2.38	5.56

TABLE 31—(Contd.).

Specialists Groups		1942	1943	1944	1945
(9)	Symptoms, senility and ill-defined conditions	2.78	4.00	8.28	4.86
(10)	All other diseases	13.74	19.44	15.02	17.83
(11)	All diseases	95.35	93.81	85.72	82.48
(12)	All non-battle injuries	4.02	4.21	5.12	7.53
(13)	All battle injuries	0.63	1.98	9.16	9.99
(14)	All cases	100.00	100.00	100.00	100.00

Section X

BRITISH OTHER RANKS

In this section, as in the one previous to this, all BORs serving with Indian, British, West African and East African units on the Indo-Burma front, will be considered collectively. Morbidity figures pertaining to them are given in Tables 32 to 34.* A broad comparison of these figures with those for the British officers and VCOs and IORs will show that BORs suffered illness of a greater magnitude than either of the other two categories. This difference between the BORs and BOs is specially great. For none of the diseases mentioned in Tables 32 and 33 were the average rates of incidence for BORs less than those for the British officers. For instance, average venereal diseases rate for the former was about eleven times that for the latter; rates for scabies was about five times; of skin diseases about three times; of malaria, minor septic diseases, ENT diseases, diarrhoea, respiratory and digestive diseases each about twice as much. This large difference between the morbidities of BORs and BOs was probably due to the better observance of hygiene discipline by the BOs and possibly also to their less frequent exposure.

Another important point emerges from a comparison of incidence rates of the BORs and VCOs and IORs. In this case again the former registered higher rates per 1,000 of strength from all diseases than the corresponding rates for the latter. Exceptions were scabies, common cold, eye diseases and other respiratory diseases. Among these diseases scabies was about twice more prevalent in VCOs and IORs and the incidence of the remaining three diseases was between one to two times among the VCOs and IORs. Barring these four diseases BORs suffered more than the VCOs and IORs from all the other diseases.

On an average dengue was about seventeen times more widespread among the BORs than among the VCOs and IORs; tonsillitis more than five times; dysentery, hepatitis and mental diseases each about three times; minor septic diseases, venereal diseases, ENT diseases, diarrhoea and skin diseases each about twice more frequent. Malaria and NYD fever were also more prevalent among the BORs than among the VCOs and IORs. Reasons for the increased incidence from all these diseases may perhaps be in the comparatively lower immunity of the BORs.

Another arresting difference lies in the rates for all diseases, injuries due to enemy action, injuries due to non-enemy action, and all causes. The relevant figures are given on the next page. These figures show that throughout the period under consideration BORs suffered at a greater rate from "all diseases" as well as from "all causes" than the VCOs and IORs. During 1942 only injuries caused somewhat higher rates among the latter. For the rest of the period BORs rates far exceeded the Indians'. Higher rates of enemy action injuries for the BORs during 1943 to 1945 is suggestive of the fact that perhaps a greater brunt of the war in Burma fell upon the BORs who, specially

Comparative rate per 1,000 strength among BORs, and VCOs & IORs.

Diseases	1942		1943		1944		1945	
	BORs	VCOs & IORs	BORs	VCOs & IORs	BORs	VCOs & IORs	BORs	VCOs & IORs
(i) All diseases..	1020.6	877.4	1745.9	1073.4	1333.8	911.7	584.7	349.8
(ii) Injuries due to enemy action ..	4.5	5.5	13.9	9.9	101.9	44.6	54.9	33.1
(iii) Injuries due to non-enemy action ..	33.2	37.8	64.4	45.7	54.8	47.9	45.6	43.3
(iv) All cases ..	1058.3	920.8	1824.3	1128.9	1490.5	1004.3	685.2	426.2

in 1944 which was a year of most active warfare on this front, suffered 2.3 times as many casualties as the VCOs and IORs.

Morbidity history of the BORs is very largely similar to that of the VCOs and IORs. Major differences lay in the incidence of dengue, tonsillitis and mumps between the two categories. The first two of these diseases produced very low incidence rates among the VCOs and IORs, but a measureable incidence among the BORs whereas mumps behaved contrariwise between them.

As among the various diseases and disorders for which BORs were hospitalised, malaria throughout remained the most important single cause. Its rates of incidence, per 1,000 strength, were 335 in 1942; 628 in 1943; 406 in 1944 and 96 in 1945. The drop in 1944 and 1945 are statistically significant. These are the highest rates of malaria recorded by any category of troops on this front. The rate for 1943 indicates that for every 10 BORs more than 6 were malaria-ridden during that year. This fact is borne out by figures of monthly incidence also which are given below.

Monthly incidence rate per 1,000 strength of malaria.

Month			1943	1944	1945
January ..	..	..	41.6	41.5	15.1
February ..	..	..	39.6	16.1	11.2
March ..	..	..	33.9	20.1	12.6
April ..	..	..	51.8	21.4	16.0
May ..	..	..	89.9	27.7	14.1
June ..	..	..	89.8	36.2	10.6
July ..	..	..	70.6	49.5	7.5
August ..	..	..	52.1	74.6	3.6
September ..	..	..	35.6	52.2	3.4
October ..	..	..	53.4	34.8	
November ..	..	..	47.9	22.9	
December..	..	..	73.0	16.3	

The point of interest in these figures lies in comparing monthly incidence rates in the same month during the three years. For instance, in March 1943, a rate of 33.9 was recorded which fell by 40 per cent. to 20.1 during March 1944 which again fell further by about 37 per cent. in March 1945. The extent of the fall in malaria morbidity may be viewed from the June rates. During 1943, this month registered a huge rate of 90 per 1,000. By June of the next year, this rate got reduced by 60 per cent. to 36. A further reduction of 70 per cent. in June 1944 rate was affected by June 1945 when it was about 1/8th of the rate for June 1943. Reductions in monthly malaria rate occurred all over, except during August-September 1944. When this lowering is considered over the period taken as a whole it forms a time series with a steeply falling trend. The highest rate of 90 per 1,000 ever recorded during these months was in May/June 1943 and the lowest 3.4 per 1,000 during September 1945. Reasons for this fall have already been covered. It is interesting to note that during 1945, BORs in India suffered at a higher rate (131 per 1,000). As between the months of any one year, the higher rates of incidence during April to June and again between October to December may also be noticed.

In terms of relative rates (see Table 33) malaria was responsible for 33, 36, 30 and 16 per cent. of all sick admissions during the four years.

Other diseases having average incidence rates of a magnitude higher than 50 per 1,000, are given below in descending order. The relative importance of the incidence of these diseases in total sickness among the BORs may be seen in the figures given on next page. It is evident that these six diseases, along with malaria, were responsible for 2/3rd or more than 2/3rd of all sickness among the BORs till 1944. During 1945, a year of highly reduced morbidity, they accounted for more than half of total sickness.

Rate per 1,000 strength.

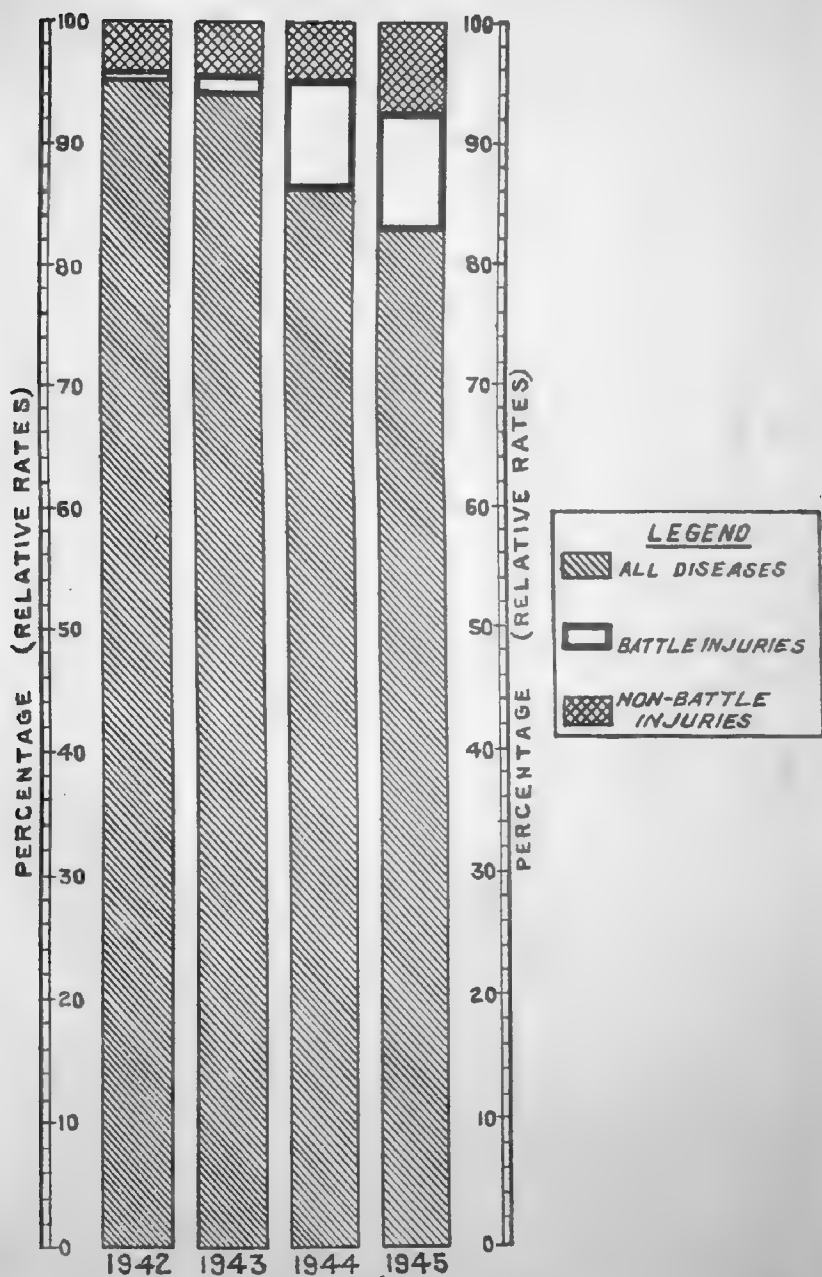
Diseases			1942	1943	1944	1945
Dysentery	..	..	88	132	97	49
Venereal diseases	..	..	72	158	69	54
NYD fever	..	..	16	53	159	30
Diarrhoea	..	..	42	77	91	26
Digestive diseases	other	..	61	87	53	26
than diarrhoea	..	..	54	66	49	42
Minor septic diseases	..	..		

Mention has already been made in this section of the very high incidence of dengue and tonsillitis among the BORs. It may be recalled that both of these diseases had incidence rates lower than 10 per mille in the case of VCOs & IORs. The high rates in the case of BORs are probably attributable to their lower resistance.

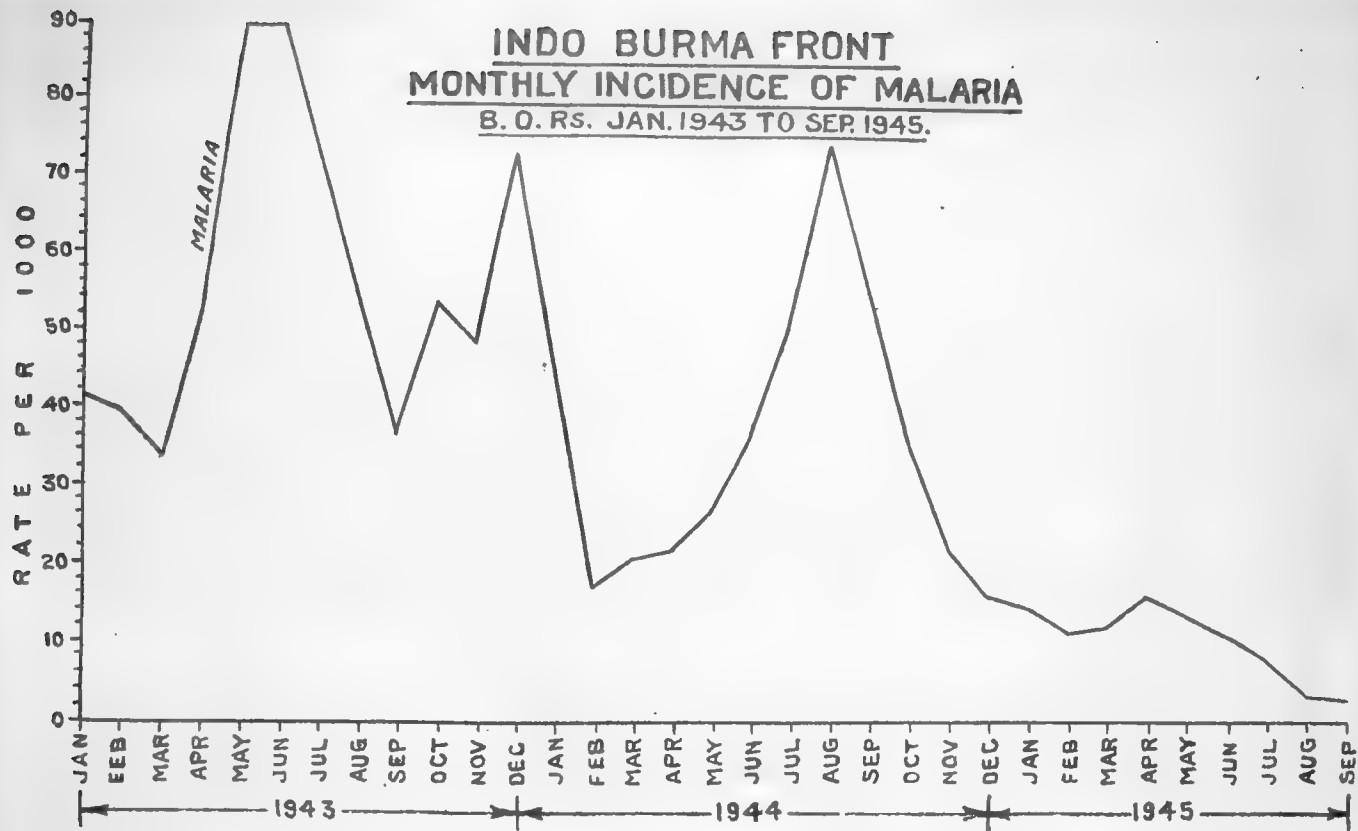
INDO-BURMA FRONT

RELATIVE IMPORTANCE OF DISEASES BATTLE & NON-BATTLE INJURIES
AMONG BRITISH OFFICERS

1942-'45



(SEE TABLE 31)



REFER PAGE 91

Relative rate.

Diseases	1942	1943	1944	1945
Dysentery	9	8	7	8
Venereal diseases	7	9	5	9
NYD fever	2	3	12	5
Diarrhoea	4	4	7	4
Digestive diseases other than diarrhoea	6	5	4	4
Minor septic diseases	5	4	4	7
Total	33	33	39	37
Malaria	33	36	30	16
Total	66	69	69	53

Among the diseases having incidence rates lower than 10 per mille, special mention may be made of heat exhaustion, typhus and diphtheria. These three diseases inflicted on BORs a higher rate of sickness than on any other category of personnel. Heat exhaustion had a rate of 9·4 per 1,000 in 1942, the year of withdrawal from Burma. In later years also high rates of incidence were registered from this disease. This was due perhaps to the fact that the British soldier was quite unused to the hot, damp and trying climate of Burma. His training for jungle warfare was begun soon after on a large scale with a consequent lowering in its incidence. Diphtheria rates during the four years were 0·8, 1·2, 0·7 and 0·5 per 1,000 respectively. These rates are higher than those recorded by any other category of troops.

From the typhus rates, it may be seen that this disease was widely prevalent in the BORs specially in 1944. This is borne out by the monthly incidence rates also which are given following.

Monthly incidence rate per 1,000 strength of typhus fever.

Month	1943	1944	1945
January	0·3	0·1	0·1
February	0·2	0·0	0·1
March	0·1	0·0	0·1
April	0·0	..	0·0
May	0·1	0·1	0·0
June	0·1	0·3	0·1
July	0·1	0·3	0·3
August .. ..	..	0·6	0·1
September	0·1	0·7	0·1
October	0·2	0·2	..
November	0·0	1·0	..
December	0·2	1·0	..

These rates do not indicate any uniform trend, but higher rates appear to show a clustering tendency towards the end months, or the first ones, of a year.

Diseases alone were responsible for 96.4 per cent. of all casualties in 1942; 95.7 per cent. in 1943; 89.5 per cent. in 1944 and 85 per cent. in 1945 (Table 34). This fall appears to be directly correlated with the fall in the relative casualty rates of infective and parasitic diseases. This group of diseases, it will be seen, includes among others malaria, dysentery, venereal diseases, and minor septic diseases. This group accounted for 58 per cent. of all casualties in 1942 and in 1943; 46 per cent. in 1944 and 40 per cent. in 1945. The other important group of specified diseases, which showed high relative casualty rates was digestive diseases, which includes 'diarrhoea' and 'other digestive diseases'. This table also shows the increasing importance of injuries due to enemy action among all causes.

Another aspect bearing upon the falling sickness among the BORs lies in their average number daily sick, over the period. Such figures for individual diseases are not available. The daily averages for all diseases and war wounds are, however, available and are shown in Table 32.

Out of every 1,000 BORs 74 were daily sick from one or the other cause and 1 from war wounds in 1943. The corresponding figures for 1944 were 41 and 3 and those for 1945 were 2 and less than 1 per 1,000 respectively.

As in the case of British officers, the trend of sickness from individual diseases or from all diseases amongst BORs seems to have deflected a little from the corresponding trend for all British troops, on this front.

CONCLUSION

As between the morbidity histories of BORs and BOs, average venereal diseases rate for the former was about eleven times of that for the latter; rate for scabies similarly was about five times; skin diseases three times; minor septic diseases, ENT diseases, diarrhoea, respiratory and digestive diseases each about two times of the latter.

Morbidity rates registered by BORs were consistently higher than those registered by the VCOs and IORs from most of the causes given here. Some of the diseases that produced high rates of absolute morbidity among the BORs were malaria, dysentery, venereal diseases, NYD fever, digestive diseases, minor septic diseases, skin diseases, ENT diseases, hepatitis and respiratory diseases.

Dengue and tonsillitis were specially prevalent among the BORs but mumps specially more among the VCOs and IORs. Typhus was particularly severe on BORs when compared with others, especially in 1944.

Absolute rates of all admissions among BORs during the four years were 1,058, 1,824, 1,490 and 685 per 1,000 respectively. For every injury due to enemy action there were 226 sick admissions in 1942; 130 in 1943; 13 in 1944 and about 12 in 1945.

TABLE 32

*Admissions to Hospitals—Annual rates per 1,000 strength: BORs: SEAC
(Indo-Burma Front).*

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.02	0.03	0.15	0.06
Cholera	0.5	0.05	0.05	0.10
Dengue	38.2	24.6	4.43	1.36
Diphtheria ..	0.8	1.2	0.65	0.52
Dysentery	87.8	132.0	97.44	48.62
Enteric group of fevers	1.9	1.4	0.85	0.31
Hepatitis	5.0	27.0	31.48	23.45
Malaria	334.7	628.2	405.58	96.26
Major septic diseases	0.06	3.1	1.43	2.25
Minor septic diseases	53.5	65.9	48.67	41.76
Mumps	0.1	0.5	0.24	0.37
Oriental sore ..	0.2	0.2	0.04	0.20
Pediculosis ..	0.1	0.2	0.19	0.01
Plague .. ..	..	..	..	0.03
Poliomyelitis ..	0.4	0.05	0.11	0.06
Sandfly fever ..	2.8	3.7	0.70	0.29
Scabies	7.9	16.8	13.38	4.07
Smallpox	0.4	0.8	0.48	0.76
Tuberculosis ..	1.0	0.9	0.42	0.48
Trachoma	0.09	0.4	0.20	0.43
Typhus fever ..	0.7	1.4	5.54	0.97
Venereal disease ..	72.2	157.9	69.23	54.14
Total	609.1	1066.6	681.26	276.50
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri .. ..	..	0.03	..	..
Scurvy	0.04	0.8	0.09	0.01
Total	0.04	0.83	0.09	0.01
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia ..	..	..	..	0.50
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	2.5	6.1	10.88	17.43
(5) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases ..	19.4	36.4	26.66	19.65
Eye diseases other than trachoma ..	4.5	12.7	9.85	9.35
Total	23.9	49.1	36.51	29.00
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0.5	0.9	0.56	0.39
Other circulatory diseases	4.9	8.1	5.28	3.81
Total	5.4	9.0	5.84	4.20

TABLE 32—(Contd.)

Diseases		1942	1943	1944	1945
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	11.7	21.3	18.50	12.46
	Tonsillitis ..	13.9	23.8	13.24	13.92
	Influenza ..	3.8	5.4	1.00	0.26
	Pneumonia ..	1.2	..	0.85	0.70
	Other respiratory diseases ..	21.4	30.1	20.92	15.25
	Total ..	52.0	80.6	54.51	42.59
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	41.7	77.0	91.21	26.12
	Other digestive diseases ..	61.03	87.1	52.69	25.95
	Total ..	102.73	164.1	143.91	52.06
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	38.2	50.0	36.13	38.39
	Aerolar tissue ..	3.9	..	..	..
	Total ..	42.1	50.0	36.13	38.39
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	15.7	52.9	159.21	29.69
	PUO ..	20.6	29.4	10.12	2.02
	Total ..	36.3	82.3	169.34	31.70
(11)	<i>All other diseases</i> ..	146.3	237.3	195.33	92.32
(12)	<i>All diseases</i> ..	1,020.61	1,745.90	1,333.81	584.71
(13)	<i>Accidents, poisoning and violence (non-battle injuries)</i>				
	Burns and scalds ..	..	..	3.81	4.77
	Other local injuries ..	33.2	64.4	50.99	40.81
	Total ..	33.2	64.4	54.81	45.58
(14)	<i>Accidents, poisoning and violence (battle injuries)</i>				
	Injuries caused by blast ..	..	..	0.82	0.31
	Bomb wounds ..	0.5	2.4	21.85	9.46
	Gunshot wounds ..	3.9	8.8	54.81	30.46
	Shell wounds ..	0.1	2.7	24.43	14.71
	Total ..	4.5	13.9	101.91	54.94
(15)	<i>All cases</i> ..	1,058.4	1,824.3	1,490.53	685.24
(16)	<i>Average daily sick per 1,000 strength</i>				
	(i) Sickness ..	..	74.40	40.66	2.28
	(ii) War wounds ..	..	1.03	3.10	0.20
	(iii) Total ..	..	75.43	43.76	2.48

TABLE 33

Relative morbidity rates: BORs: SEAC (Indo-Burma Front).

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	0.00	0.00	0.01	0.01
	Cholera ..	0.05	0.03	0.00	0.02
	Dengue ..	3.74	1.41	0.33	0.23
	Diphtheria ..	0.07	0.07	0.05	0.09
	Dysentery ..	8.61	7.56	7.30	8.32
	Enteric group of fevers ..	0.19	0.08	0.06	0.05
	Hepatitis ..	0.49	1.54	2.36	4.01
	Malaria ..	32.80	35.98	30.41	16.46
	Major septic diseases ..	0.06	0.18	0.11	0.38
	Minor septic diseases ..	5.24	3.78	3.65	7.14
	Mumps ..	0.01	0.03	0.02	0.06
	Oriental sore ..	0.02	0.01	0.00	0.03
	Pediculosis ..	0.01	0.01	0.01	0.00
	Plague ..	..	..	..	0.00
	Poliomyelitis ..	0.04	0.00	0.01	0.01
	Sandfly fever ..	0.28	0.21	0.05	0.05
	Scabies ..	0.77	0.96	1.00	0.70
	Smallpox ..	0.04	0.04	0.04	0.13
	Tuberculosis ..	0.09	0.04	0.03	0.08
	Trachoma ..	0.01	0.02	0.01	0.07
	Typhus fever ..	0.07	0.08	0.41	0.17
	Venereal diseases ..	7.08	9.04	5.19	9.26
	Total ..	59.69	61.09	51.07	47.29
(2)	<i>Allergic Endocrine System, Metabolic and Nutritional diseases</i>				
	Beri beri ..	..	0.00	..	..
	Scurvy ..	0.00	0.05	0.01	0.00
	Total ..	0.00	0.05	0.01	0.00
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia ..	..	..	..	0.09
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	0.25	0.35	0.82	2.98
(5)	<i>Diseases of the Nervous system and Sense organs</i>				
	ENT diseases ..	1.90	2.09	2.00	3.36
	Eye diseases other than trachoma ..	0.44	0.73	0.74	1.60
	Total ..	2.34	2.81	2.74	4.96
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	0.06	0.05	0.04	0.07

TABLE 33—(Contd.).

Diseases		1942	1943	1944	1945
	Other circulatory diseases	0.48	0.47	0.40	0.65
	Total	0.54	0.52	0.44	0.72
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	1.14	1.22	1.39	2.13
	Tonsillitis ..	1.37	1.36	0.99	2.38
	Influenza ..	0.37	0.31	0.07	0.04
	Pneumonia ..	0.12	..	0.06	0.12
	Other respiratory dis- cases	2.10	1.72	1.57	2.61
	Total	5.10	4.61	4.09	7.28
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	4.08	4.41	6.84	4.47
	Other digestive dis- cases	5.97	4.99	3.95	4.44
	Total	10.05	9.40	10.79	8.90
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	3.75	2.86	2.71	6.56
	Aerolar tissue ..	0.38	..	..	..
	Total	4.13	2.86	2.71	6.56
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	1.53	3.03	11.94	5.08
	PUO	2.01	1.68	0.76	0.35
	Total	3.54	4.71	12.70	5.43
(11)	<i>All other diseases</i> ..	14.34	13.59	14.65	15.78
(12)	<i>All diseases</i>	100.00	100.00	100.00	100.00

TABLE 34

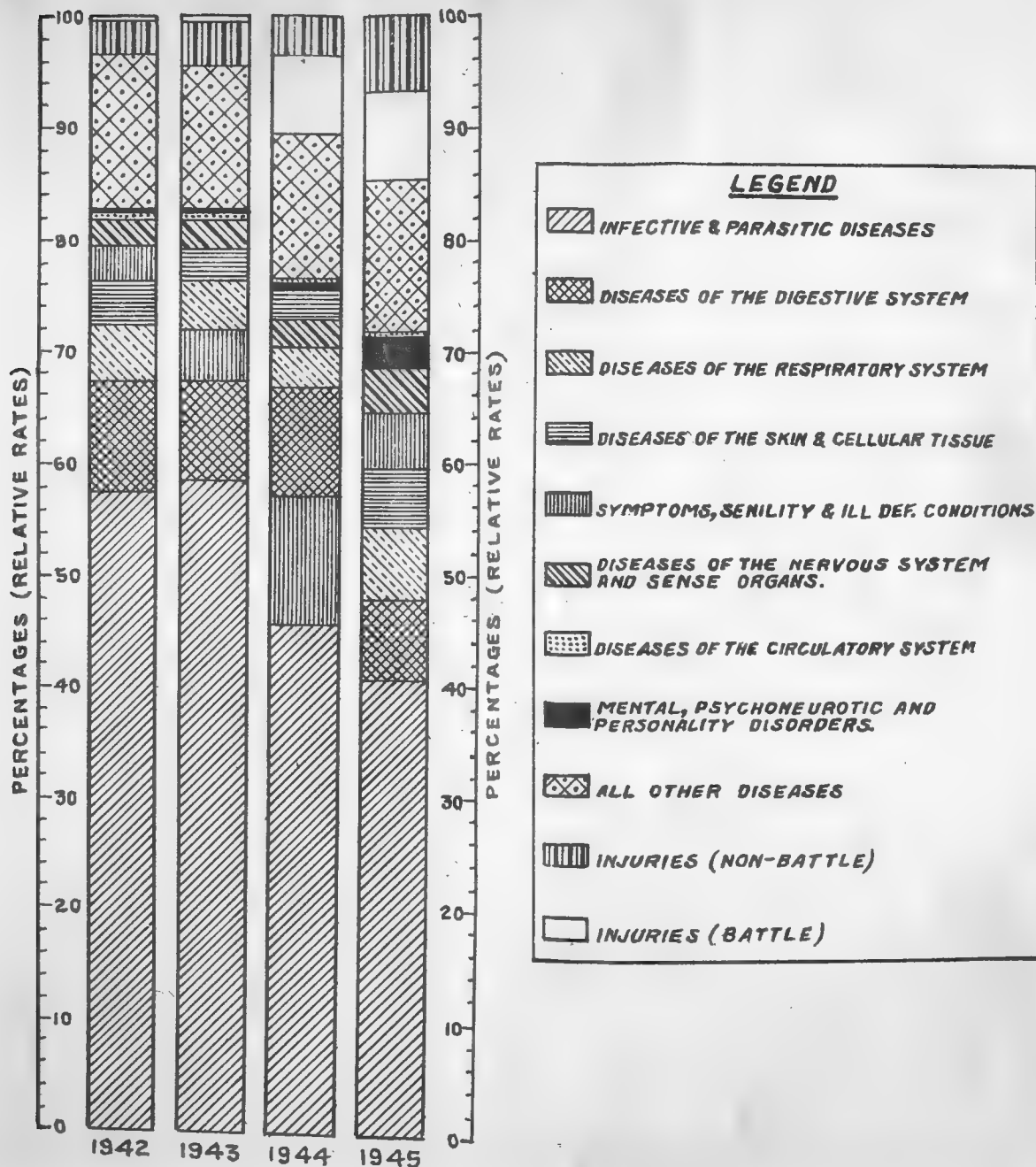
Relative casualty rates: BORs: SEAC (Indo-Burma Front).

Specialist Groups		1942	1943	1944	1945
(1)	Infective and para- sitic diseases ..	57.55	58.46	45.71	40.35
(2)	Allergic, endocrine system, metabolic and nutritional diseases ..	0.00	0.05	0.01	0.00
(3)	Diseases of the blood and blood forming organs	0.00	0.00	..	0.07
(4)	Mental, psychoneuro- tic and personality disorders	0.24	0.33	0.73	2.54

INDO-BURMA FRONT

RELATIVE CASUALTY RATES DUE TO GROUPS OF DISEASES

B.O.Rs. 1942-1945



(SEE TABLE 34)

TABLE 34—(Contd.)

Specialist Groups	1942	1943	1944	1945
(5) Diseases of the nervous system and sense organs ..	2.26	2.69	2.45	4.23
(6) Diseases of the circulatory system ..	0.52	0.49	0.39	0.61
(7) Diseases of the respiratory system ..	4.92	4.42	3.66	6.22
(8) Diseases of the digestive system ..	9.70	9.00	9.65	7.60
(9) Diseases of the skin and cellular tissue ..	3.98	2.74	2.42	5.60
(10) Symptoms, senility and ill-defined conditions ..	3.42	4.51	11.36	4.63
(11) All other diseases ..	13.83	13.00	13.11	13.47
(12) All diseases ..	96.43	95.70	89.49	85.33
(13) All non-battle injuries..	3.13	3.53	3.69	6.65
(14) All battle injuries ..	0.44	0.77	6.84	8.02
(15) All cases ..	100.00	100.00	100.00	100.00

Section XI

MILITARY NURSING SERVICE (BRITISH SERVICE)

Although MNS(BS) served mainly as base line troops, yet, as can be seen from their morbidity figures given in Tables 35 to 37, they suffered sickness at about the same rates as the front line forces. Their rates per 1,000 strength from all diseases, given below, will afford the necessary comparison:—

Comparative incidence rate per 1,000 for all diseases.

	1942	1943	1944	1945
MNS(BS)	435	719	869	292
British Officers	714	726	521	258

These figures show that morbidity due to diseases was about equal between the MNS(BS) and British officers during 1943; more each year among the former during 1944 and 1945 than among the latter, and less during 1942. The corresponding rates per 1,000 strength for MNS (Indian Service) were 111 in 1942; 448 in 1943; 490 in 1944 and 217 in 1945. These differences are perhaps attributable to the same causes as were mentioned while considering the higher morbidity of BORs against that of VCOs and IORs, that is, the lower resistance of British personnel.

MNS(BS) perhaps succumbed to the high infection carried to the rear by the returning front-line sick troops. For, like other troops, they also registered very high rates from malaria, dysentery, diarrhoea and minor septic diseases, in that order. Also other specific diseases that caused sickness among them at average rates of higher than ten per 1,000, during the period were, in descending order, tonsillitis, dengue, hepatitis and ENT diseases.

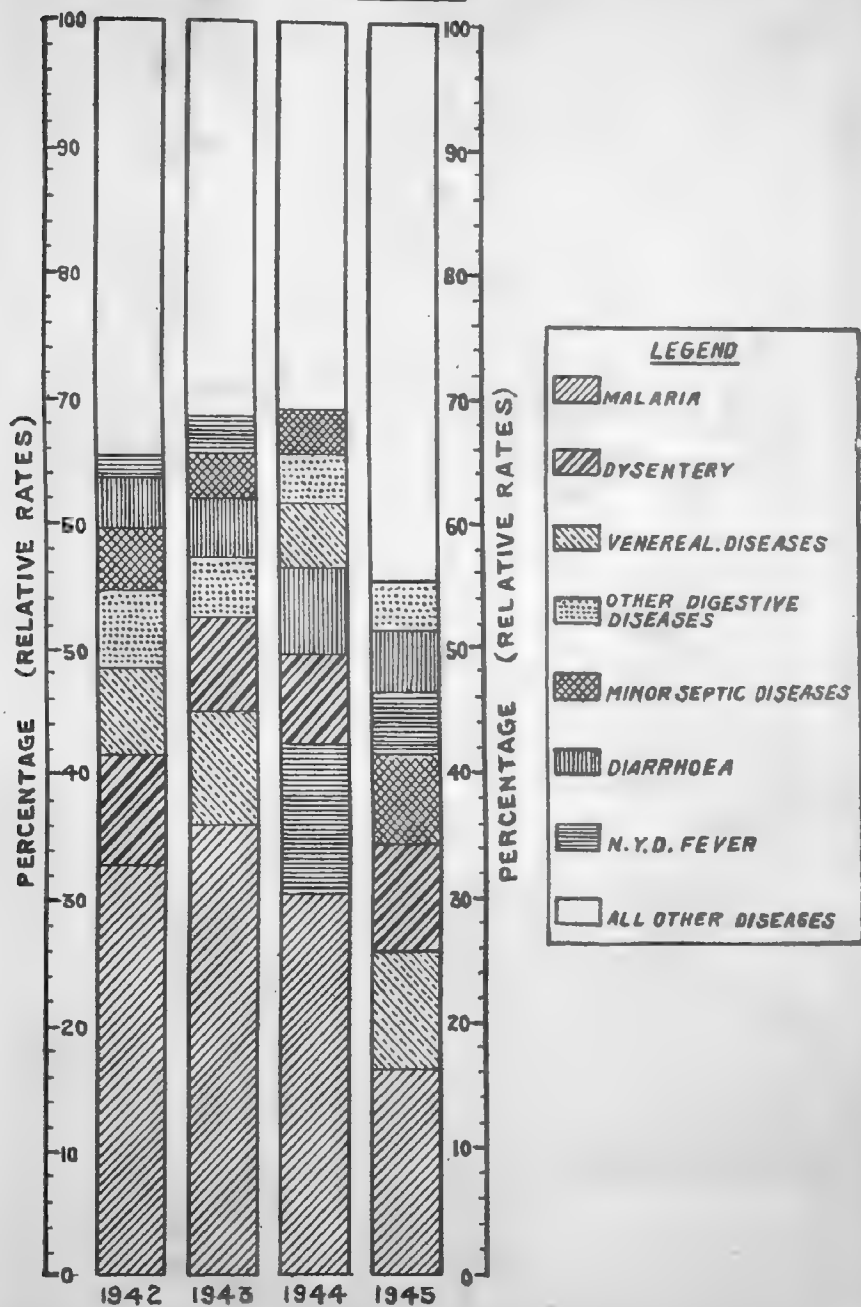
Another significant point of difference, which might incidentally support the general thesis that MNS(BS) received infection from the returning sick soldiers, lies in the fact that the highest rates for each of these diseases among the MNS(BS) were registered in the year 1944 whereas the corresponding highest rates among the BOs and BORs occurred in 1943. This time lag, which need not be one year as might appear from the above statement, might vary by a few months. Generally high rates of incidence from malaria or dysentery or diarrhoea among the MNS(BS) occurred one, two or three months after such high rates prevailed among the BOs or BORs. It is seldom that the high rates among MNS(BS) coincided with those for the other two categories and when such a situation did arise the sickness of MNS(BS) might not be taken as wholly due to infection from the returning troops.

As between the various diseases that caused sickness among MNS (BS) the comparative importance of malaria, dysentery, diarrhoea and minor septic diseases may be seen from the figures on next page.

INDO-BURMA FRONT

RELATIVE IMPORTANCE OF MAJOR DISEASES B.O.R.s,

1942-45

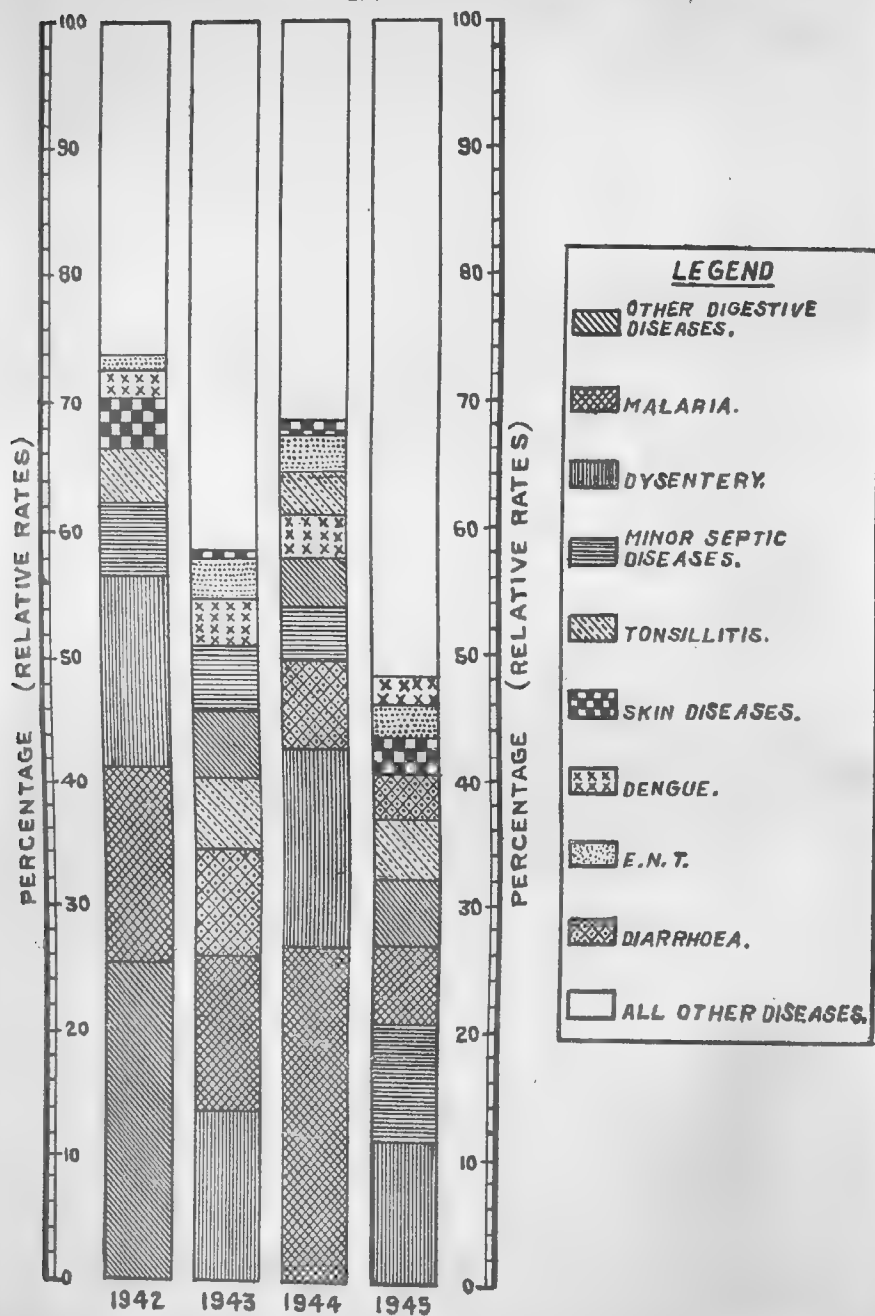


(SEE TABLE 33)

INDO-BURMA FRONT

RELATIVE IMPORTANCE OF MAJOR DISEASES, M.N.S.(B.S.)

1942-'45



(SEE TABLE 36)

Rates per 1,000 strength: MNS(BS)

	1942	1943	1944	1945
(1) All diseases ..	435	719	869	292
(2) Malaria, dysentery and diarrhoea	135*	244	430	62
(3) Malaria, dysentery, diarrhoea and minor septic diseases ..	160*	282	457	88

* Diarrhoea rate for 1942 not available.

These figures and those of the corresponding relative rates (Table 36) show that the three diseases in (2) above accounted for 31 per cent., 34 per cent., 49 per cent. and 21 per cent. of all sick admissions respectively. If the percentage contribution of minor septic diseases each year is also added to them, the figures will become 37 per cent., 39 per cent., 55 per cent. and 30 per cent. Figures like these emphasise the major importance of malaria, dysentery, diarrhoea and minor septic diseases among the diseases from which MNS(BS) also suffered on this front. The highest incidence was registered in 1944 at 913 per 1,000 which fell down in 1945 by 33 per cent. to 307 per 1,000.

Other important features of the morbidity history of MNS(BS) are their higher rates of incidence against those of the other British troops from dengue, diphtheria, tonsillitis, influenza, enteric group of fevers and tuberculosis over the period and lower rates from skin and mental diseases. Typhus rates are not available over the whole period but in 1943 their rate was about equal to that for the British officers and less than that for the BORs. Diseases like scurvy and anaemia also appear to have affected this category of personnel.

From a study of the relative casualty rates (Table 37) it may be concluded that enemy action was not responsible for any casualties among MNS(BS) except in 1942; diseases always accounted for about 95 per cent. of all casualties. Among the various remaining groups of diseases 'infective and parasitic diseases' stood out as the most prominent. It will be remembered that among others, malaria, dysentery and minor septic diseases, which were consistently major causes of illness, are all included in this group. The other groups of diseases which made substantial contribution to total casualties were 'diseases of the digestive system' (which includes diarrhoea) and 'diseases of the respiratory system'.

The rates per 1,000 of MNS(BS), daily sick from diseases during 1943, 1944 and 1945 were 24, 30 and 1.10 respectively (Table 35). These figures are indicative of a big improvement in the sickness suffered by MNS(BS) and seen in conformity with the general improvement achieved all over this front.

CONCLUSION

These troops also suffered at overall rates almost similar to those of the BORs. Since they were base line troops, figures of their monthly incidence from various infectious diseases show a certain time lag as if those diseases were carried to the rear by the returning front line troops.

Malaria, dysentery, diarrhoea and minor septic diseases accounted each year for a very large proportion of their total morbidity.

They registered higher rates than those by BOs and BORs from dengue, diphtheria, tonsillitis, influenza, enteric group of fevers and tuberculosis and lower rates from skin and mental diseases.

The rates of average number daily sick improved thus: from 24 in 1943 and 30 in 1944 to 1 per 1,000 in 1945.

TABLE 35

Admissions to Hospitals—Annual rates per 1,000 strength: MNS(BS): SEAC (Indo-Burma Front).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Dengue	10·0	25·0	30·5	6·17
Diphtheria	10·0	..	4·4	1·54
Dysentery	65·0	96·9	141·6	33·95
Enteric group of fevers	5·0	..	..	..
Hepatitis	5·0	..	30·7	10·80
Malaria	70·0	87·0	228·7	16·97
Major septic diseases ..	..	6·3	..	1·54
Minor septic diseases ..	25·0	37·5	37·0	26·23
Mumps .. ..	..	..	..	3·09
Scabies .. ..	..	..	..	1·54
Tuberculosis	5·0	..	2·2	1·54
Typhus fever .. ..	..	3·1	..	..
Total	195·00	256·2	474·9	103·39
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional-diseases</i>				
Scurvy .. ..	..	3·1	..	..
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	1·54
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases .. ..	..	6·3	2·2	1·54
(5) <i>Diseases of the Nervous system and Sense organs</i>				
ENT diseases	5·0	25·0	26·1	7·72
Eye diseases other than trachoma ..	..	12·5	2·2	4·63
Total	5·0	37·5	28·3	12·35

TABLE 35—(Contd.).

Diseases		1942	1943	1944	1945
(6)	<i>Diseases of the Circulatory system</i>				
	Other circulatory diseases	10.0	9.4	..	1.54
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold	5.0	6.3	13.1	9.26
	Tonsillitis	20.0	43.8	26.1	13.89
	Influenza .. ..	..	12.5	4.4	..
	Other respiratory diseases	5.0	18.8	17.4	7.72
	Total	30.0	81.3	61.0	30.86
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea .. ..	..	59.4	58.8	10.80
	Other digestive diseases	110.0	40.6	32.7	15.43
	Total	110.0	100.0	91.5	26.23
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases	15.0	3.1	10.9	9.26
	Aerolar tissue .. ..	..	..	..	..
	Total	15.0	3.1	10.9	9.26
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever .. ..	..	..	32.7	10.80
	PUO .. ..	..	..	4.4	..
	Total .. ..	..	..	37.1	10.80
(11)	<i>All other diseases</i>	70.0	221.9	163.4	94.14
(12)	<i>All diseases</i>	435.0	718.7	869.3	291.67
(13)	<i>Accidents, poisoning and violence (non-battle injuries)</i>				
	Burns and scalds .. ..	..	..	..	1.54
	Other local injuries	10.0	43.8	43.6	13.89
	Total	10.0	43.8	43.6	15.43
(14)	<i>Accidents, poisoning and violence (battle injuries)</i>				
	Gunshot wounds	5.0	..	..	..
(15)	<i>All cases</i>	450.0	762.5	912.9	307.1
(16)	<i>Average daily sick per 1,000 strength</i>				
	Sickness .. ..	..	24.20	29.66	1.10

TABLE 36

Relative morbidity rates: MNS(BS): SEAC (Indo-Burma Front).

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Dengue	2.30	3.48	3.51	2.12
	Diphtheria	2.30	..	0.50	0.53
	Dysentery	14.94	13.48	16.29	11.64
	Enteric group of fevers	1.15	..	..	..
	Hepatitis	1.15	..	3.51	3.71
	Malaria	16.09	12.17	26.32	5.82
	Major septic diseases ..	..	0.87	..	0.53
	Minor septic diseases ..	5.75	5.22	4.26	8.96
	Mumps .. ..	..	..	..	1.06
	Scabies .. ..	..	..	..	0.53
	Tuberculosis	1.15	..	0.25	0.53
	Typhus fever .. ..	..	0.43	..	..
	Total	44.83	35.65	54.64	35.45
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Scurvy .. ..	..	0.43	..	..
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia .. ..	..	..	..	0.53
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases .. ..	..	0.87	0.25	0.53
(5)	<i>Diseases of the Nervous system and Sense organs</i>				
	ENT diseases	1.15	3.48	3.01	2.64
	Eye diseases other than trachoma .. ..	..	1.74	0.25	1.59
	Total	1.15	5.22	3.26	4.23
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever .. ..	..	..	..	..
	Other circulatory diseases	2.30	1.30	..	0.53
	Total	2.30	1.30	..	0.53
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold	1.15	0.87	1.50	3.17
	Tonsillitis	4.60	6.09	3.01	4.76
	Influenza .. ..	..	1.74	0.50	..
	Other respiratory diseases	1.15	2.61	2.00	2.65
	Total	6.90	11.30	7.02	10.58

TABLE 36—(Contd.).

Diseases	1942	1943	1944	1945
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea ..	..	8.26	6.77	3.70
Other digestive diseases ..	25.29	5.65	3.76	5.29
Total ..	25.29	13.91	10.53	8.99
(9) <i>Diseases of the Skin and Cellular tissue</i>				
Skin diseases ..	3.45	0.43	1.25	3.17
Aerolar tissue ..	..	..	..	..
Total ..	3.45	0.43	1.25	3.17
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever ..	..	..	3.76	3.70
PUO ..	..	..	0.50	..
Total ..	..	..	4.26	3.70
(11) <i>All other diseases</i> ..	16.09	30.87	18.80	32.27
(12) <i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 37

Relative casualty rate: MNS(BS): SEAC (Indo-Burma Front).

Specialist Groups	1942	1943	1944	1945
(1) Infective and parasitic diseases ..	43.33	33.61	52.03	33.67
(2) Allergic, endocrine system, metabolic and nutritional diseases ..	..	0.41	..	..
(3) Diseases of the blood and blood forming organs ..	..	..	..	0.50
(4) Mental, psychoneurotic and personality disorders ..	..	0.82	0.25	0.50
(5) Diseases of the nervous system and sense organs ..	1.11	4.92	3.10	4.02
(6) Diseases of the circulatory system ..	2.22	1.23	..	0.50
(7) Diseases of the respiratory system ..	6.67	10.64	6.68	10.04
(8) Diseases of the digestive system ..	24.44	13.11	10.02	8.54
(9) Diseases of the skin and cellular tissue ..	3.33	0.41	1.19	3.01

TABLE 37—(Contd.).

Specialist Groups		1942	1943	1944	1945
(10)	Symptoms, senility and ill defined con- ditions .. ..	..	..	4·06	3·52
(11)	All other diseases ..	15·56	29·10	17·90	30·65
(12)	All diseases ..	96·67	94·26	95·23	94·98
(13)	All non-battle injuries..	2·22	5·74	4·77	5·02
(14)	All battle injuries ..	1·11	..	..	..
(15)	All cases	100·00	100·00	100·00	100·00

Section XII

ALL BRITISH TROOPS

Figures of annual rates of absolute incidence, relative morbidity rates and relative casualty rates are given in Tables 38 to 40. They seem to conform to the general pattern presented by the corresponding rates of the BORs.

The relevant rates from all causes were 1,027 in 1942; 1,649 in 1943; 1,365 in 1944 and 607 in 1945.

The overall rate of sick every day was 68 per 1,000 in 1943; about 40 in 1944 and only 22 in 1945.

TABLE 38

Admissions to Hospitals—Annual rates per 1,000 strength; British Troops; SEAC (Indo-Burma Front).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic Diseases</i>				
Cerebrospinal fever ..	0.02	0.06	0.15	0.07
Cholera	0.44	0.45	0.04	0.08
Dengue	36.87	23.86	4.61	1.71
Diphtheria	0.74	1.17	0.69	0.54
Dysentery	87.18	122.24	92.53	44.41
Enteric group of fevers ..	2.07	1.43	0.77	0.35
Hepatitis	5.56	26.58	31.02	22.11
Malaria	326.89	559.64	364.16	80.88
Major septic diseases ..	0.52	3.24	1.36	1.99
Minor septic diseases ..	51.64	60.17	44.46	36.51
Mumps	0.12	0.52	0.20	0.39
Oriental sore	0.20	0.22	0.03	0.16
Pediculosis	0.10	0.14	0.16	0.01
Plague .. ..	..	..	..	0.02
Poliomyelitis	0.60	0.06	0.17	0.07
Sandfly fever	2.85	3.22	0.63	0.27
Scabies	7.17	14.29	11.78	3.59
Smallpox	0.46	0.72	0.47	0.70
Tuberculosis	1.00	0.87	0.38	0.52
Trachoma	0.08	0.36	0.18	0.35
Typhus fever	0.64	1.63	5.15	0.90
Venereal diseases	65.92	133.78	59.04	44.07
Total	591.10	954.67	618.09	239.71
(2) <i>Allergic, endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri .. ..	..	0.03	..	..
Scurvy	0.04	0.69	0.07	0.02
Total	0.04	0.72	0.07	0.02

TABLE 38—(Contd.)

Diseases	1942	1943	1944	1945
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0·41
(4) <i>Mental, Psychoneurotic and Personality Disorders</i>				
Mental diseases ..	2·77	6·19	10·11	15·72
(5) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases ..	18·54	33·23	25·12	17·45
Eye diseases other than trachoma	4·68	11·10	8·74	8·23
Total	23·22	44·33	33·86	25·68
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0·58	0·90	0·51	0·36
Other circulatory diseases	5·02	7·59	4·74	3·44
Total	5·60	8·49	5·25	3·80
(7) <i>Diseases of the Respiratory system</i>				
Common cold ..	11·06	19·01	16·90	10·76
Tonsillitis	13·70	22·05	12·55	12·20
Influenza	3·71	5·05	1·01	0·22
Pneumonia	1·18	..	0·84	0·75
Other respiratory diseases	20·36	27·56	19·41	13·45
Total	50·02	73·67	50·71	37·37
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea	40·31	70·35	84·42	23·79
Other digestive diseases	60·39	80·45	49·76	23·15
Total	100·70	150·80	134·18	46·94
(9) <i>Diseases of the Skin and Cellular tissue</i>				
Skin diseases ..	35·85	44·35	32·99	33·95
Aerolar tissue ..	3·63	..	..	..
Total	39·48	44·35	32·99	33·95
(10) <i>Symptoms, senility and ill-defined conditions</i>				
NYD fever	14·98	47·36	142·35	26·06
PUO	19·66	26·22	9·21	2·17
Total	34·64	73·58	151·56	28·23
(11) <i>All other diseases</i> ..	141·98	219·03	181·12	84·97
(12) <i>All diseases</i>	989·56	1,575·82	1,217·95	516·80
(13) <i>Accidents, Poisoning and Violence (Non-Battle injuries)</i>				
Burns and scalds ..	..	..	3·51	4·04
Other local injuries ..	32·80	58·95	48·03	36·89
Total	32·80	58·95	51·54	40·93

TABLE 38—(Contd.).

Diseases		1942	1943	1944	1945
(14)	<i>Accidents, Poisoning and Violence (Battle injuries)</i>				
	Injuries caused by blast	..	..	0.75	0.28
	Bomb wounds ..	0.58	2.56	20.57	8.84
	Gunshot wounds ..	3.96	8.98	51.28	27.60
	Shell wounds ..	0.12	2.59	22.87	13.05
	Total ..	4.66	14.13	95.46	49.77
(15)	<i>All cases</i> ..	1,027.01	1,648.90	1,364.95	607.50
(16)	<i>Average daily sick per 1,000 Strength</i>				
	(i) Sickness ..	..	66.80	37.00	19.97
	(ii) War wounds ..	..	0.95	2.88	1.87
	(iii) Total ..	..	67.75	39.88	21.87

TABLE 39

Relative morbidity rates: British Troops: SEAC (Indo-Burma Front).

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	0.00	0.00	0.01	0.01
	Cholera ..	0.04	0.03	0.00	0.01
	Dengue ..	3.73	1.51	0.38	0.33
	Diphtheria ..	0.07	0.07	0.06	0.10
	Dysentery ..	8.81	7.76	7.60	8.59
	Enteric group of fevers ..	0.21	0.09	0.06	0.07
	Hepatitis ..	0.56	1.69	2.55	4.28
	Malaria ..	33.03	35.51	29.90	15.65
	Major septic diseases ..	0.05	0.20	0.11	0.38
	Minor septic diseases ..	5.22	3.82	3.65	7.06
	Mumps ..	0.01	0.03	0.02	0.07
	Oriental sore ..	0.02	0.01	0.00	0.03
	Pediculosis ..	0.01	0.01	0.01	0.00
	Plague ..	..	..	..	0.00
	Poliomyelitis ..	0.06	0.00	0.01	0.01
	Sandfly fever ..	0.29	0.20	0.05	0.05
	Scabies ..	0.72	0.91	0.97	0.69
	Smallpox ..	0.05	0.05	0.04	0.14
	Tuberculosis ..	0.10	0.05	0.03	0.10
	Trachoma ..	0.01	0.02	0.01	0.07
	Typhus fever ..	0.06	0.10	0.42	0.17
	Venereal diseases ..	6.66	8.49	4.85	8.53
	Total ..	59.73	60.58	50.75	46.39

TABLE 39—(Contd.).

Diseases	1942	1943	1944	1945
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri .. ..	..	0.00	..	..
Scurvy	0.00	0.04	0.01	0.00
Total	0.00	0.05	0.01	0.00
(3) <i>Diseases of the Blood and Blood Forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0.08
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	0.28	0.39	0.83	3.04
(5) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases ..	1.87	2.11	2.06	3.38
Eye diseases other than trachoma	0.47	0.70	0.72	1.59
Total	2.35	2.81	2.78	4.97
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0.06	0.06	0.04	0.07
Other circulatory diseases	0.51	0.48	0.39	0.66
Total	0.57	0.54	0.43	0.73
(7) <i>Diseases of the Respiratory system</i>				
Common cold ..	1.12	1.21	1.39	2.08
Tonsillitis	1.38	1.40	1.03	2.36
Influenza	0.37	0.32	0.08	0.04
Pneumonia	0.12	..	0.07	0.14
Other respiratory diseases	2.06	1.75	1.59	2.60
Total	5.06	4.68	4.17	7.23
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea	4.07	4.46	6.93	4.60
Other digestive diseases	6.10	5.11	4.09	4.48
Total	10.18	9.57	11.02	9.08
(9) <i>Diseases of the Skin and Cellular tissue</i>				
Skin diseases ..	3.62	2.81	2.71	6.57
Aerolar tissue ..	0.37	..	..	..
Total	3.99	2.81	2.71	6.57
(10) <i>Symptoms, senility and Ill-defined conditions</i>				
NYD fever	1.51	3.00	11.69	5.04
PUO	1.99	1.66	0.76	0.42
Total	3.50	4.66	12.45	5.46
(11) <i>All other diseases</i> ..	14.35	13.90	14.87	16.43
(12) <i>All diseases</i>	100.00	100.00	100.00	100.00

TABLE 40

Relative casualty rates: British Troops: SEAC (Indo-Burma Front).

Specialist Groups	1942	1943	1944	1945
(1) Infective and parasitic diseases	57.55	57.90	44.28	39.46
(2) Allergic, endocrine system, metabolic and nutritional diseases ..	0.00	0.04	0.00	0.00
(3) Diseases of the blood and blood forming organs ..	..	..	..	0.07
(4) Mental, psychoneurotic and personality disorders	0.27	0.37	0.74	2.59
(5) Diseases of the nervous system and sense organs	2.26	2.69	2.48	4.23
(6) Diseases of the circulatory system ..	0.55	0.51	0.38	0.63
(7) Diseases of the respiratory system	4.87	4.47	4.72	6.15
(8) Diseases of the digestive system	9.80	9.15	9.83	7.73
(9) Diseases of the skin and cellular tissue ..	3.84	2.69	2.42	5.59
(10) Symptoms, senility and ill-defined conditions ..	3.37	4.46	11.10	4.65
(11) All other diseases ..	13.82	13.28	13.27	13.99
(12) All diseases ..	96.36	95.57	89.23	85.07
(13) All non-battle injuries ..	3.19	3.57	3.78	6.74
(14) All battle injuries ..	0.45	0.86	6.99	8.19
(15) All cases	100.00	100.00	100.00	100.00

Section XHI

MAGNITUDE OF SICKNESS

The general reduction in the incidence of diseases and the consequent saving in manpower on this front can well be assessed from figures of morbidity given in Tables 41 to 44. Total sickness rates and those due to all diseases for troops on Indo-Burma Front and in SEA are given below:—

Year			Total sickness rate per 1,000		Rate per 1,000 due to all diseases	
			Burma	SEAC	Burma	SEAC
1942	..	..	926	891	885	849
1943	..	..	1,204	1,118	1,151	1,067
1944	..	..	1,088	1,004	993	918
1945	..	..	413	463	347	395

Reductions of 66 per cent. and 59 per cent. in all casualties rate and of 70 per cent. and 63 per cent. in the disease rates from their peaks in 1943 will be noticed in 1945. In terms of actual annual admissions, the story is retold in the following table:—

Year			Total admissions due to all causes		Total admissions due to all diseases	
			Burma	SEAC	Burma	SEAC
1942	..	..	179,011	215,715	171,252	205,575
1943	..	..	535,454	598,215	511,506	570,865
1944	..	..	566,255	625,812	516,654	571,986
1945	..	..	229,235	266,219	192,277	226,616

The highest annual admissions were recorded in 1944, whereas the highest rates of admissions were produced in 1943. These statements are not anachronistic if they are read with the further explanation that during 1944 the strength of the population at risk was also higher.

The highest monthly admissions are provided by the month of June 1944 and the lowest by September 1945. The peak figure in Burma in 1943 was 57,301 admissions in July, during 1944 it was 71,368 in June; and 34,710 in April 1945. Figures given on page 114 show the relationship between sickness and war wounds throughout the period in Burma and South East Asia Command.

This will be clear from the actual admissions, figures of which are produced below:—

Actual admissions

Diseases	1942		1943		1944		1945	
	Burma	SEAC	Burma	SEAC	Burma	SEAC	Burma	SEAC
Malaria	76,348	83,969	218,477	233,482	171,138	181,025	26,211	31,951
Dysentery	11,438	12,166	21,183	24,445	28,022	30,622	10,379	11,551
Diarrhoea	5,636	6,855	15,964	17,187	24,145	25,834	7,579	8,524
Typhus	64	68	468	489	1,494	2,159	528	531
War wounds	872	960	3,735	3,775	24,680	24,712	16,188	16,194

The relative percentage rates (Tables 42 and 44) which these diseases bore to admissions due to "all diseases" are shown in the following table:—

Relative percentage rate to all diseases

Diseases	1942		1943		1944		1945	
	Burma	SEAC	Burma	SEAC	Burma	SEAC	Burma	SEAC
Malaria	45	41	44	41	33	32	14	14
Dysentery	7	6	4	4	5	5	5	5
Diarrhoea	3	3	3	3	5	4	4	4
Typhus fever	0.04	0.03	0.09	0.09	0.29	0.38	0.27	0.23

Year	War wounds	Sick admissions	
		Burma	SEAC
1942	1	196	214
1943	1	137	151
1944	1	21	23
1945	1	12	14

Absolute rates of morbidity from some of the diseases and from war wounds are given below:—

Rates per 1,000 strength

Diseases	1942		1943		1944		1945	
	Burma	SEAC	Burma	SEAC	Burma	SEAC	Burma	SEAC
Malaria ..	395	347	491	436	329	290	47	56
Dysentery ..	59	50	48	46	54	49	19	20
Diarrhoea ..	29	28	35	32	46	41	14	15
Typhus fever ..	0·3	0·3	1·1	0·9	2·9	3·5	1·0	0·9
War wounds ..	4·5	4·0	8	7·1	47	40	29	28

TABLE 41

Admissions to Hospitals—Annual rates per 1,000 strength; All troops: SEAC (Indo-Burma Front).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0·34	0·59	0·24	0·14
Cholera	0·50	0·66	0·14	0·13
Dengue	11·13	3·99	1·25	0·83
Diphtheria	0·19	0·29	0·16	0·13
Dysentery	59·14	47·65	53·86	18·71
Enteric group of fevers ..	0·95	0·44	0·30	0·20
Hepatitis	1·86	5·72	16·61	11·19
Malaria	394·79	491·46	328·93	47·26
Major septic diseases ..	0·19	3·34	0·95	1·06
Minor septic diseases ..	34·21	39·05	33·28	21·34
Mumps	7·42	5·26	4·49	3·66
Oriental sore	0·20	0·19	0·04	0·04
Pediculosis	0·03	0·06	0·05	0·00
Plague .. .. .	..	0·00	..	0·00

TABLE 41—(Contd.):

Diseases		1942	1943	1944	1945
	Poliomyelitis ..	0.16	0.02	0.03	0.01
	Sandfly fever ..	0.81	0.80	0.21	0.39
	Scabies ..	13.81	24.69	19.72	6.93
	Smallpox ..	0.24	0.65	0.88	0.40
	Tuberculosis ..	1.82	1.42	1.08	1.06
	Trachoma ..	0.73	1.70	1.15	0.06
	Typhus fever ..	0.33	1.05	2.87	0.95
	Venereal diseases ..	50.20	81.17	47.43	36.27
	Total ..	579.06	710.45	513.69	151.36
(2)	<i>Allergic Endocrine system, Metabolic and Nutritional diseases</i>				
	Beri beri ..	0.01	0.04	0.01	0.01
	Scurvy ..	0.09	0.32	0.02	0.04
	Total ..	0.10	0.36	0.03	0.05
(3)	<i>Diseases of the Blood and blood forming organs</i>				
	Nutritional and other anaemia ..	..	..	..	2.08
(4)	<i>Mental, psychoneurotic and personality disorders</i>				
	Mental diseases ..	1.76	3.58	5.69	6.89
(5)	<i>Diseases of the nervous system and sense organs</i>				
	ENT diseases ..	16.39	21.43	19.85	9.89
	Eye diseases other than trachoma ..	8.19	16.20	12.18	8.62
	Total ..	24.58	37.63	32.03	18.51
(6)	<i>Diseases of the circulatory system</i>				
	Rheumatic fever ..	0.60	1.33	0.34	0.26
	Other circulatory diseases	4.69	4.19	4.61	1.99
	Total ..	5.29	5.52	4.95	2.25
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	13.66	31.98	30.21	14.26
	Tonsillitis ..	5.62	6.28	4.67	3.76
	Influenza ..	9.35	3.07	0.70	0.33
	Pneumonia ..	3.17	..	3.63	3.50
	Other respiratory diseases	22.17	31.52	27.65	14.98
	Total ..	53.97	72.85	66.87	36.83
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	29.14	34.56	46.41	13.66
	Other digestive diseases	31.30	42.55	39.27	15.74
	Total ..	60.45	77.11	85.68	29.40
(9)	<i>Diseases of the skin and Cellular tissue</i>				
	Skin diseases ..	18.13	27.17	27.29	18.44

TABLE 41—(Contd.)

Diseases		1942	1943	1944	1945
(10)	Acrolar tissue ..	1.42			
	Total ..	19.55	27.17	27.29	18.44
	<i>Symptoms, senility and ill-defined conditions</i>				
	NYD fever ..	22.22	57.57	116.80	19.86
	PUO ..	7.49	12.42	3.62	0.72
(11)	Total ..	29.71	69.99	120.42	20.58
	<i>All other diseases</i> ..	111.03	145.95	130.59	60.30
(12)	<i>All diseases</i> ..	885.53	1,150.63	993.01	346.68
(13)	<i>Accidents, Poisoning and violence (Non-battle injuries)</i>				
	Burns and scalds ..			2.62	2.90
	Other local injuries ..	35.61	45.47	45.27	34.54
	Total ..	35.61	45.47	47.90	37.45
(14)	<i>Accidents, Poisoning and Violence (Battle injuries)</i>				
	Injuries caused by blast ..			0.41	0.13
	Bomb wounds ..	1.86	2.40	11.38	6.77
	Gunshot wounds ..	3.99	4.58	24.01	15.27
	Shell wounds ..	0.33	1.42	11.64	7.02
	Total ..	4.51	8.40	47.43	29.19
	<i>All cases</i> ..	925.65	1,204.50	1,088.34	413.32

TABLE 42

Relative morbidity rates: All Troops; SEAC (Indo-Burma Front).

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	0.04	0.05	0.02	0.04
	Cholera ..	0.06	0.06	0.01	0.04
	Dengue ..	1.26	0.35	0.13	0.24
	Diphtheria ..	0.02	0.02	0.02	0.04
	Dysentery ..	6.68	4.23	5.42	5.40
	Enteric group of fevers ..	0.11	0.06	0.03	0.06
	Hepatitis ..	0.21	0.51	1.67	3.23
	Malaria ..	44.58	43.59	33.09	13.63
	Major septic diseases ..	0.02	0.30	0.09	0.31
	Minor septic diseases ..	3.86	3.46	3.35	6.16
	Mumps ..	0.84	0.47	0.45	1.06
	Oriental sore ..	0.02	0.02	0.00	0.01
	Pediculosis ..	0.00	0.00	0.00	0.00

TABLE 42—(Contd.)

Diseases		1942	1943	1944	1945
	Plague .. ..	..	0.00	..	0.00
	Poliomyelitis	0.02	0.00	0.00	0.00
	Sandfly fever	0.09	0.07	0.02	0.11
	Scabies	1.56	2.19	1.98	2.00
	Smallpox	0.03	0.06	0.09	0.11
	Tuberculosis	0.21	0.13	0.11	0.31
	Trachoma	0.08	0.15	0.12	0.18
	Typhus fever	0.04	0.09	0.29	0.27
	Venereal diseases	5.67	7.20	4.77	10.46
	Total	65.39	63.00	51.67	43.67
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Beri beri	0.00	0.00	0.00	0.00
	Scurvy	0.01	0.03	0.00	0.01
	Total	0.01	0.03	0.00	0.01
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia .. ..	..	..	..	0.60
(4)	<i>Mental, Psychoneurotic and personality disorders</i>				
	Mental diseases	0.20	0.32	0.57	1.99
(5)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases	1.85	1.90	2.00	2.85
	Eye diseases other than trachoma	0.92	1.44	1.23	2.49
	Total	2.78	3.34	3.22	5.34
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever	0.07	0.12	0.04	0.07
	Other circulatory diseases	0.53	0.37	0.46	0.57
	Total	0.60	0.49	0.50	0.65
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold	1.54	2.84	3.04	4.11
	Tonsillitis	0.63	0.56	0.47	1.08
	Influenza	1.06	0.27	0.07	0.09
	Pneumonia	0.36	..	0.36	1.01
	Other respiratory diseases	2.50	2.80	2.78	4.32
	Total	6.09	6.46	6.73	10.62
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	3.29	3.06	4.67	3.94
	Other digestive diseases	3.53	3.77	3.95	4.54
	Total	6.83	6.84	8.62	8.48
(9)	<i>Diseases of the skin and Cellular tissue</i>				
	Skin diseases	2.05	2.41	2.74	5.32

TABLE 42—(Contd.).

Diseases		1942	1943	1944	1945
	Aerolar tissue ..	0.16			
	Total ..	2.21	2.41	2.74	5.32
(10)	<i>Symptoms, senility and ill-defined conditions</i>				
	NYD fever ..	2.51	5.11	11.75	5.73
	PUO ..	0.85	1.10	0.36	0.21
	Total ..	3.36	6.21	12.11	5.94
(11)	<i>All other diseases</i> ..	12.54	12.95	13.13	17.39
(12)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 43

Relative casualty rates: All troops: SEAC (Indo-Burma Front).

Specialist Groups		1942	1943	1944	1945
(1)	Infective and parasitic diseases ..	62.56	58.98	47.20	36.62
(2)	Allergic, endocrine system, metabolic and nutritional diseases ..	0.01	0.03	0.00	0.01
(3)	Diseases of the blood and blood forming organs ..	..	..	..	0.50
(4)	Mental, psychoneurotic and personality disorders	0.19	0.30	0.52	1.67
(5)	Diseases of the nervous system and sense organs	2.66	3.12	2.94	4.48
(6)	Diseases of the circulatory system ..	0.57	0.46	0.45	0.54
(7)	Diseases of the respiratory system ..	5.83	6.05	6.14	8.91
(8)	Diseases of the digestive system ..	6.53	6.40	7.87	7.11
(9)	Diseases of the skin and cellular tissue ..	2.11	2.26	2.51	4.46
(10)	<i>Symptoms, senility and ill-defined conditions</i> ..	3.21	5.81	11.06	4.98
(11)	<i>All other diseases</i> ..	12.00	12.11	12.00	14.59
(12)	<i>All diseases</i> ..	95.66	95.53	91.24	83.88
(13)	<i>All non-battle injuries</i> ..	3.85	3.77	4.40	9.06
(14)	<i>All battle injuries</i> ..	0.49	0.70	4.36	7.06
(15)	<i>All cases</i> ..	100.00	100.00	100.00	100.00

TABLE 44
Admissions to Hospitals—Annual rates per 1,000 strength and relative morbidity rates: All Troops: South East Asia Command (including Ceylon and Burma).

Diseases	1942		1943		1944		1945	
	Absolute Rate	Relative Rate	Absolute Rate	Relative Rate	Absolute Rate	Relative Rate	Absolute Rate	Relative Rate
(1) <i>Infective and Parasitic diseases</i>								
Cerebrospinal fever ..	0.31	0.04	0.52	0.05	0.23	0.02	0.18	0.04
Cholera ..	0.40	0.05	0.55	0.05	0.12	0.01	0.13	0.03
Dengue ..	15.06	1.77	5.92	0.55	3.00	0.33	1.32	0.33
Diphtheria ..	0.27	0.03	0.26	0.02	0.22	0.02	0.14	0.04
Dysentery ..	50.24	5.92	45.70	4.28	49.14	5.35	20.11	5.10
Enteric group of fevers ..	0.93	0.11	0.59	0.06	0.48	0.05	0.21	0.05
Hepatitis ..	2.58	0.30	5.26	0.49	14.68	1.60	11.43	2.90
Malaria ..	346.73	40.85	436.52	40.90	290.51	31.65	55.63	14.10
Major septic diseases ..	0.15	0.02	2.77	0.26	0.93	0.10	1.13	0.29
Minor septic diseases ..	38.05	4.48	37.39	3.50	30.89	3.36	22.82	5.78
Mumps ..	6.65	0.78	4.77	0.45	4.10	0.45	4.23	1.07
Oriental sore ..	0.21	0.02	0.17	0.02	0.06	0.01	0.04	0.01
Pediculosis ..	0.02	0.00	0.05	0.00	0.05	0.00	0.00	0.00
Plague ..	..	..	0.00	0.00	0.00	0.00	0.00	0.00
Polio-myelitis ..	0.13	0.02	0.25	0.02	0.08	0.01	0.01	0.00
Sandfly fever ..	0.85	0.10	0.75	0.07	0.33	0.03	0.41	0.10
Scabies ..	12.52	1.47	21.93	2.05	17.62	1.92	8.35	2.12
Smallpox ..	0.20	0.02	0.55	0.05	0.74	0.08	0.40	0.10
Tuberculosis ..	1.80	0.21	1.76	0.16	1.11	0.12	1.14	0.29
Trachoma ..	0.77	0.09	1.52	0.14	1.07	0.12	0.64	0.16
Typhus fever ..	0.28	0.03	0.91	0.09	3.46	0.38	0.92	0.23
Veneral diseases ..	50.39	5.94	74.19	6.95	46.50	5.07	39.26	9.95
Total ..	528.56	62.26	642.34	60.18	465.33	50.69	168.52	42.71

TABLE 44—(Contd.)

Diseases	1942		1943		1944		1945	
	Absolute Rate	Relative Rate	Absolute Rate	Relative Rate	Absolute Rate	Relative Rate	Absolute Rate	Relative Rate
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>								
Beri beri ..	0.01	0.00	0.03	0.00	0.03	0.00	0.02	0.00
Scurvy ..	0.07	0.01	0.27	0.02	0.06	0.01	0.11	0.03
Total ..	0.08	0.01	0.30	0.02	0.09	0.01	0.13	0.03
(3) <i>Diseases of the Blood and Blood forming organs</i>								
Nutritional and other anaemia ..	..	..	..	..	..	..	2.22	0.56
(4) <i>Mental, Psychoneurotic and personality disorders</i>								
Mental diseases ..	1.96	0.23	3.42	0.32	5.38	0.59	7.23	1.83
(5) <i>Diseases of the nervous system and sense organs</i>								
ENT diseases ..	13.09	1.54	17.81	1.67	19.18	2.09	12.01	3.04
Eye diseases other than trachoma ..	8.89	1.05	15.17	1.42	11.62	1.27	10.06	2.55
Total ..	21.98	2.59	32.98	3.09	30.80	3.36	22.07	5.59
(6) <i>Diseases of the Circulatory system</i>								
Rheumatic fever ..	0.48	0.06	1.13	0.11	0.47	0.05	0.30	0.07
Other circulatory diseases ..	3.76	0.44	3.49	0.33	4.40	0.48	2.03	0.51
Total ..	4.24	0.50	4.62	0.44	4.87	0.53	2.33	0.59

TABLE 44—(Contd.)

Diseases	1942		1943		1944		1945	
	Absolute Rate	Relative Rate	Absolute Rate	Relative Rate	Absolute Rate	Relative Rate	Absolute Rate	Relative Rate
(7) <i>Diseases of the Respiratory system</i>								
Pharyngitis ..	1.40	0.16	0.49	0.04	..	..	..	..
Common cold ..	16.07	1.89	31.46	2.95	30.62	3.34	17.68	4.48
Tonsillitis ..	6.88	0.81	6.20	0.58	4.72	0.51	4.44	1.12
Influenza ..	8.71	1.03	3.77	0.35	1.11	0.12	0.75	0.19
Pneumonia ..	2.53	0.30	..	..	3.03	0.33	3.64	0.92
Other respiratory diseases	17.71	2.09	26.20	2.45	27.34	2.98	17.10	4.33
Total ..	53.30	6.28	68.11	6.38	66.82	7.28	43.61	11.05
(8) <i>Diseases of the Digestive system</i>								
Diarrhoea ..	28.31	3.33	32.13	3.01	41.46	4.52	14.84	3.76
Other digestive diseases ..	31.75	3.74	40.34	3.78	36.96	4.03	18.59	4.71
Total ..	60.06	7.07	72.47	6.79	78.42	8.55	33.43	8.47
(9) <i>Diseases of the skin and Cellular tissue</i>								
Skin diseases ..	14.48	1.70	22.58	2.12	26.17	2.85	20.66	5.24
Aerolar tissue ..	1.13	0.13	..	..	..	..	..	..
Total ..	15.61	1.83	22.58	2.12	26.17	2.85	20.66	5.24
(10) <i>Symptoms, senility and ill-defined conditions</i>								
NYD fever ..	17.75	2.09	47.85	4.48	104.79	11.42	23.04	5.84
PUO ..	6.57	0.77	10.96	1.03	3.23	0.35	0.78	0.20
Total ..	24.32	2.86	58.81	5.51	108.02	11.77	23.82	6.04

TABLE 44—(Contd.).

Diseases	1942		1943		1944		1945	
	Absolute Rate	Relative Rate	Absolute Rate	Relative Rate	Absolute Rate	Relative Rate	Absolute Rate	Relative Rate
(11) <i>All other diseases</i> ..	138.73	16.35	161.64	15.15	127.04	13.84	70.57	17.88
(12) <i>All diseases</i> ..	848.88	100.00	1,067.29	100.00	917.92	100.00	394.58	100.00
(13) <i>Accidents, poisoning and violence (non-battle injuries)</i> ..	..	..	..	..	..	..	..	..
Burns and scalds ..	..	..	..	..	..	..	..	..
Other local injuries ..	37.89	..	44.08	..	2.19	..	2.95	..
Total ..	37.89	..	44.08	..	44.53	..	37.80	..
(14) <i>Accidents, poisoning and violence (battle injuries)</i> ..	..	..	..	..	46.72	..	40.75	..
Injuries caused by blast ..	..	..	..	..	..	..	..	..
Bomb wounds ..	0.26	..	1.99	..	0.34	..	0.12	..
Gunshot wounds ..	3.41	..	3.87	..	9.51	..	6.54	..
Shell wounds ..	0.31	..	1.19	..	20.08	..	14.75	..
Total ..	3.97	..	7.06	..	9.72	..	6.78	..
(15) <i>All cases</i> ..	890.75	..	1,118.42	..	39.66	..	28.20	..
					1,004.30		463.54	

Section XIV

RELATIONSHIP BETWEEN BATTLE AND NON-BATTLE CASUALTIES, DURING ACTIVE BATTLE DAYS

In Tables 45 and 46 the ratios of daily battle and non-battle casualties are given at Divisional, Army and, Corps levels separately. Weeks chosen are generally those in which active operations were taking place. At Army level the figures pertain to the Fourteenth Army or ALFSEA which were located wholly in Burma at that time. For the sake of illustration Corps and Divisional levels here are those for the XVth Corps and its constituent divisions. The information presented here has been culled from the respective war diaries of DDMS for Corps and of ADMS for the divisions. Army figures are from the concerned DMS returns. All figures are shown in rates per 1,000 strength for all troops in the unit concerned.

Among the sixteen weeks between 6 May, 1944 and 27 October, 1945, for which information relating to the Fourteenth Army is shown in Table 45, the highest ratio of war wounds to non-battle casualties was 1:4 in the week ending 10 March, 1945. The lowest figure at this level was 1:141 during the week ending 14 October, 1944. It is important here to keep in view the variance of the figures during the weeks under consideration. During eleven out of the sixteen weeks these ratios were higher than 1:50 which goes to show the importance of war wounds at this level.

At Corps level the highest war wound ratio was 1:1 during the weeks ending 10 March and 21 April, 1945. It will be seen on a week to week comparison of these figures that the proportion of war wounds to non-battle casualties increases as a shift is made from the Army to the Corps level. It further increases on going still lower to the Divisional level. As will be seen at the latter level, during some weeks the battle casualties far exceeded the non-battle casualties suffered by a division. In this connection the ratios during the periods given below may specially be seen:—

The 7th Division	Week ending 26 February, 1944.
The 25th Division	(i) Week ending 27 January, 1945.
	(ii) Week ending 10 March, 1945.
The 26th Division	(i) Week ending 26 February, 1944.
	(ii) Week ending 27 January, 1945.
The 82 (WA) Division	Week ending 10 March, 1945.

In this connection it will be interesting to recall the relationship between war wounds and non-battle casualties, as given in Table 41, for all forces in Burma. The ratios were 1:143 in 1943; 1:22 in 1944 and 1:13 in 1945.

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*Divisional level Indo-Burma Front and SEAC**Admissions*

36 British Division			81 West African Division			25 Indian Division			82 West African Division		
Non-Battle Casualties	Battle Casualties	Ratio	Non-Battle Casualties	Battle Casualties	Ratio	Non-Battle Casualties	Battle Casualties	Ratio	Non-Battle Casualties	Battle Casualties	Ratio
1.29	0.10	1:13	1.44	0.45	1:3						
2.07	0.44	1:5	2.75	1.79	1:2						
3.55	..		0.70	..		2.77	1.20	1:2			
			1.21	0.13	1:9	2.64	0.61	1:4			
			1.63	..		3.97	..	..	
			2.51	..		3.36	0.03	1:112			
			2.84	..		3.03	0.44	1:7			
			3.14	0.21	1:15	3.36	0.09	1:38			
			2.24	0.23	1:10	1.88	0.33	1:5	1.51	..	
			1.76	0.36	1:5	1.10	..		1.00	0.46	1:2
			1.50	0.34	1:4	1.46	1.76	1:0.83	0.67	0.29	1:2
			1.87	..		1.04	0.84	1:1	1.04	0.94	1:1
						1.77	3.15	1:56	0.92	1.15	1:0.80
1.69	0.06	1:28				0.79	..				

TABLE 46

Relationship between Battle and Non-battle Casualties at Army & Corps Levels.

Week ending	Fourteenth Army/ ALFSEA			XV Corps		
	Daily rate per 1,000 Admissions			Daily rate per 1,000 Admissions		
	Non- battle casual- ties	Battle Casual- ties	Ratio	Non- battle Casual- ties	Battle casual- ties	Ratio
23 October 1943				3.21	0.07	1 : 46
20 November 1943				3.64	0.05	1 : 73
25 December 1943				1.55	0.27	1 : 6
29 January 1944				2.48	1.09	1 : 2
26 February 1944				1.45	0.91	1 : 2
11 March 1944				1.93	0.72	1 : 3
15 April 1944				2.51	0.72	1 : 4
6 May 1944	2.69	0.37	1 : 7	2.31	0.84	1 : 3
24 June 1944	4.03	0.21	1 : 19	3.0	0.01	1 : 262
1 July 1944	3.92	0.18	1 : 22			
16 September 1944	2.72	0.02	1 : 136	3.07	0.1	1 : 31
14 October 1944	2.81	0.02	1 : 141	3.54	0.11	1 : 32
25 November 1944				1.85	0.12	1 : 15
23 December 1944	1.54	0.04	1 : 39	1.22	0.17	1 : 7
27 January 1945	1.32	0.19	1 : 7	0.95	0.44	1 : 2
17 February 1945	1.35	0.29	1 : 5	1.36	0.42	1 : 3
10 March 1945	1.12	0.31	1 : 4	1.08	0.96	1 : 1
21 April 1945	1.23	0.17	1 : 7	0.77	0.72	1 : 1
5 May 1945	1.17	0.11	1 : 11	0.64	0.01	1 : 64
9 June 1945	1.24	0.08	1 : 16	1.02	0.00	..
7 July 1945	1.38	0.06	1 : 23	0.61	..	..
4 August 1945	1.27	0.02	1 : 64	0.90	..	..
22 September 1945	1.12					
27 October 1945	1.09			0.93		

Section XV

RACE DIFFERENTIALS

Differences in the reactions to different causes of sickness amongst different nationalities of troops will be studied here based on the absolute rates of incidence. They are indicative of differences in admissions from a morbid condition between British, Indian and other troops but will not show the intensity of suffering for lack of data on average period of illness from that condition. This qualification will underlie all the comments of this section. Differentials between these troops concerning some of the important diseases are given in Tables 47 to 54.

It will be seen in these tables that relative rates for each disease have also been shown alongside the absolute rates. They generally support the argument based on figures of absolute rates. Wherever, however, the relative morbidity rate for a disease is found to be in disagreement with the conclusion deducible from its absolute rate special mention has been made of the fact. Unless the divergence looks too wide in a particular case, the conclusions based on the absolute morbidity rates will be taken as valid in the present context.

Tables 47 to 54 are annual tables, in four of which rates of absolute and relative morbidities, with their differentials, for important specific causes and for different nationalities of troops are given. The other four embody such information on groups of diseases. A variant of these tables are the Tables 55 to 60. Each of these enables a ready study to be made of the relative magnitude of admission rates due to a specific disease or group of diseases among different nationalities of troops. They have further been arranged to show separately diseases which caused higher or lower morbidity among the troops of a nationality as against the morbidity among Indian troops.

British troops. In the present context this heading includes all categories of troops on Indo-Burma front who were British by race. The differentials of their behaviour to diseases as against that of the Indian troops on this front is given in Tables 47 to 56. In Table 55 British troops are shown to have suffered at a higher rate of sickness than Indian troops from 15 causes in 1942; 18 causes in 1943; 19 causes in 1944 and 17 causes in 1945. Their morbidity was of a lower magnitude than that of Indian troops in respect of ten, seven, seven and nine diseases, respectively, during the four years under consideration. Reference here is also alluded to previous sections in which major causes of illness each year among British and Indian troops were enumerated. Briefly the diseases, in descending order of importance, are given on page 128.

An interesting point emerges from the study of the table given on page 128 and Tables 47 to 56. In no year did any one of the diseases mentioned therein causes greatly varying morbidity between the Indian and British troops. That was not the case in respect of some other diseases which caused morbidity among them at lower rates than those for the conditions shown in the table given on page 128. Of the diseases given on next page, only dengue, skin diseases and other digestive diseases

1942		1943		1944		1945	
Indian troops	British troops	Indian troops	British troops	Indian troops	British troops	Indian troops	British troops
Malaria	Malaria	Malaria	Malaria	Malaria	Malaria	Malaria	Malaria
Dysentery	Dysentery	V.D.	V.D.	NYD fever	NYD fever	V.D.	Dysentery
V.D.	V.D.	NYD fever	Dysentery	Dysentery	Dysentery	NYD fever	V.D.
Minor septic diseases	Other digestive diseases	Minor septic diseases	Other digestive diseases	V.D.	Diarrhoea	Minor septic diseases	Minor septic diseases
Diarrhoea	Minor septic diseases	Dysentery	Diarrhoea	Diarrhoea	V.D.	Common cold	Skin diseases
NYD fever	Diarrhoea	Common cold	Minor septic diseases	Common cold	Other digestive diseases	Skin diseases	NYD fever
Other respiratory diseases	Dengue	Diarrhoea	NYD fever	Minor septic diseases	Minor septic diseases	Dysentery	Other digestive diseases
Other digestive diseases	Skin diseases	Scabies	Skin diseases	Skin diseases	Skin diseases	Diarrhoea	Hepatitis
	Other respiratory diseases	Skin diseases	ENT diseases		Hepatitis		

(other than diarrhoea) caused among the British troops during 1942, morbidity at 16.8 times, 3 times and 2.8 times respectively, of that among the Indian troops. During 1943 and 1945 it was due to dysentery that British troops suffered admissions at more than thrice the rate of Indian troops from this disease. In 1944, hepatitis caused 2.6 times of Indian sickness among the British troops. With these annual exceptions, none of the diseases given on last page which were sources of high morbidity, caused among the British troops very much more than twice the morbidity of Indian troops. The conclusion can, therefore, be drawn that of the major causes of sickness on the Indo-Burma front, none appears to have had any special correlation with the race of the troops involved. This observation covers generally the West-African and East African troops also whose morbidity differentials are given in some subsequent paragraphs.

Of the comparatively less important causes of sickness among the British troops, "heat effects" caused 49.9 times the sickness of the Indian troops during 1942; 22.3 times during 1943; 8.2 times during 1944; and 12.5 times in 1945. Hepatitis was responsible for 19.7 times greater morbidity among the British troops than that among the Indian troops in 1942 and 14.1 times in 1943. Due to an increase in the absolute morbidity of Indian troops from this disease in 1944 and 1945, British troops are shown to have experienced only 2.6 and 2.3 times the morbidity of the Indian troops. Tonsillitis also accounted for a higher degree of absolute admissions in British troops as against that in Indian troops. The relevant proportions were 4.9; 6.5; 4.6 and 5.4 times in the four years. Skin diseases were three times more prevalent among the British troops than the Indian troops in 1942; 1.8 times in 1943; 1.4 times in 1944 and 2.2 times in 1945. Enteric group of fevers caused 3.7; 2.7; 4.5 and 2.3 times the morbidity of Indian troops respectively during the four years. Similarly typhus took a three-fold toll of the British troops in 1942; 1.7 times in 1943 and 2.9 times in 1944. During 1945 the position was reversed and Indian troops suffered relatively more admissions than the British troops from this disease. Another disease which showed fairly higher comparative rates of absolute sickness among the British troops vis-a-vis the Indian troops was diphtheria. The morbidity among the former was 9.7 times of latter in 1943; 17.3 times in 1944 and 9.0 times in 1945. During 1942, no morbidity from diphtheria is shown to have occurred in Indian troops.

There were some diseases from which Indian troops suffered more than the British troops throughout. They were common cold, scabies, mumps, pneumonia, other respiratory diseases* and tuberculosis. The outstanding differential among them was provided by mumps. This disease was 100 times more prevalent among the Indian troops during 1942; 10 times more frequent during 1943 and 1945 and 25 times in 1944. Pneumonia was always about three times more common among the Indian troops. All the other of the diseases mentioned above, from which Indian troops suffered at a higher rate than the British troops, recorded increased incidence upto two times of the British incidence.

*Respiratory diseases other than tonsillitis, influenza, pneumonia and common cold.

Another feature of Table 55 lies in the shifting position between British and Indian troops occupied by the morbidity due to typhus, malaria, influenza and NYD fever. British troops suffered at a higher rate from typhus during 1942-44 but at a lower rate in 1945. Malaria was always more prevalent among the British troops than among the Indian troops except in 1942 when the rate among the former was 80 per cent. of that for the latter. Influenza was three times as heavy in Indian troops as that among the British troops in 1942 and twice more prevalent among them in 1945; but during 1943 and 1944, it was 1.9 times and 1.6 times more prevalent among the British troops.

In Tables 47 to 50 there are very few points on which the story of comparative morbidity differentials, as told above, based on absolute morbidity rates, has not been corroborated by the differentials based on the relevant relative morbidity rates. One such condition was PUO which has been shown in 1942 to have caused greater morbidity among the British troops. The differential based on relative rates for PUO, however, reveals the reverse argument. Similarly the differentials based on relative morbidity rates of British and Indian troops do not wholly agree with that based on absolute rates in respect of malaria in 1943; skin diseases, malaria and NYD fever in 1944 and venereal diseases, 'other digestive diseases' and NYD fever in 1945 (Tables 47 to 50).

In Tables 51 to 54 and 56 the differentials between British and Indian troops have been considered on the basis of groups of diseases belonging to the same system, instead of the specific diseases, as above. None of the groups, unlike the specific diseases, revealed a difference of even as much as four times between the two racial groups. 'Allergic, endocrine, metabolic and nutritional diseases', which is not a very important group from the point of view of absolute rate of morbidity, were three times more frequent among the Indian troops in 1942 and 2.5 times in 1945. In 1943 and 1944, however, they were 2.4 and 3.5 times more prevalent among the British troops. Indian troops, again, are shown to have suffered between six to seven times more admissions from diseases of 'the blood and blood forming organs' during 1945—the only year for which information for this groups of diseases is available. 'Infective and parasitic' diseases were almost equally frequent between the two nationalities of troops in 1942 but about $1\frac{1}{2}$ times more frequent among the British troops thereafter. Mental diseases were two to three times more prevalent among the British troops. These troops experienced higher morbidity from 1.7 to 2.4 times of Indian troops from the diseases of the digestive system; from 1.3 to 3.1 times from diseases of the skin and cellular tissue and from 1.9 to 2.8 times from war wounds.

In Table 56 there are numerous points on which differentials between these troops based on relative morbidity rates are in disagreement with those based on absolute rates given above. This table, however, shows clearly that in terms of differentials based on absolute morbidity rates, British troops registered higher rates than Indian troops every year, for most of the groups of diseases.

WEST AFRICAN AND EAST AFRICAN TROOPS

The strength of troops of either of these nationalities on the Indo-Burma front, did not at any time exceed the ordinary strength of two divisions during 1944-45. Still fewer numbers of them were at a time engaged in active warfare and exposed to the special hazards of Burma warfare. It is evident that these figures compare poorly with the strengths of Indian or British troops there. It is also likely that the proportion of these troops on Indo-Burma front was greatly different from that of the Indian troops. Comparisons with Indian troops, therefore, will have to ignore these differences and instead assume that they formed, at least, representative samples of such troops.

WEST AFRICAN OTHER RANKS

Differential rates for the WAORs against the rates for Indian troops in respect of diseases and groups of diseases are given in Tables 49, 50, 53, 54, 57 and 58. Table 57 shows that West African ORs suffered morbidity at a higher rate than the Indian troops from six causes during 1944 and from eight causes during 1945. Their morbidity rates were lower than those of the Indian troops in respect of 19 and 16 diseases, respectively, during the two years. Of the important causes of sickness among the West Africans venereal diseases were responsible for twice the rate of admissions than that of the Indian troops during 1944 but for only 1.6 times more during 1945. Pneumonia rates, similarly, were 4.1 times and 6.7 times of the corresponding Indian rates in 1944 and 1945, respectively. Dysentery and "other respiratory diseases" caused only a bit higher absolute morbidity among the WAORs than the Indians. Of the comparatively less important causes of admissions enteric group of fevers, which caused admissions at a lower rate among the West Africans than among the Indians in 1944, were responsible for 2.4 times the rate of Indian admissions during 1945. Similarly PUO which showed an even rate of admissions between these two nationalities of troops in 1944, registered a 3.3 times heavier rate for the WAORs in 1945.

Hepatitis, minor septic diseases, enteric group of fevers and heat effects alternated between a year of higher rate and the other of lower rate for one or the other of the two nationalities. The extent of the difference for these diseases, however, did not go up by more than 2.4 times at any time.

Five of the important causes of morbidity among the WAORs, viz. NYD fever, malaria, minor septic diseases, diarrhoea and skin diseases were responsible for lower rates among them than among the Indians. NYD fever caused among them only a third of the morbidity of the Indians in 1944 and about 90 per cent. in 1945. Malaria showed the lowest comparative incidence. It caused pro rata one-tenth of Indian admissions among the WAORs during 1944 and one-fifth during 1945. Minor septic diseases were about equally distributed. Incidentally, the differentials based on relative rates for these diseases reverse

the picture in each of the two years. For instance diarrhoea was prevalent in the West Africans on 70 to 80 per cent. of the Indian rate. The relative rate differential, however, goes against the absolute rate differential in 1944 for diarrhoea. Skin diseases were half as much prevalent among them as among the Indian soldiers in 1944 and about 4/5ths as much in 1945.

Like the British differentials as based on the Indian troops, those for the West Africans also show that common cold, scabies, eye diseases, mumps and tuberculosis were prevalent at a higher rate among the Indian troops than among the WAORs during the two years. Common cold, scabies and mumps were each five times more frequent in the Indians during 1944. Similarly typhus had a three-fold rate of sickness in the Indians in 1944 and ten times in 1945. Tuberculosis among the West Africans was of the order of 25 per cent. of the Indian troops during both the years. Diphtheria caused no admissions among them. The incidence of mental diseases amongst WAORs was about 60 per cent. of the Indian rate.

It may, therefore, be broadly concluded from Tables 49, 50, 53 and 54 that, except for a few diseases, the WAORs generally suffered morbidity at a lower rate than that suffered by Indian troops on Indo-Burma front. This conclusion is also reinforced by the figures of differentials given in Tables 57 and 58 in which it has been shown that WAORs had lower rate of absolute morbidity than the Indian troops from most of the important groups of diseases. Rates of morbidity in WAORs from "all diseases" and "all causes" were lower by 40 per cent. of the corresponding rates for Indian troops during 1944 but higher by 20 per cent. during 1945. Similarly the rate of "war wounds" was 60 per cent. lower during 1944 among WAORs, but about 10 per cent. higher in 1945. This latter figure is not supported by the differential based on the respective relative rates, which show that even in 1945, WAORs suffered from "war wounds" at a 10 per cent. lower rate than the Indian troops. There was, in actual fact, an even rate due to "war wounds" between the two types of troops in that year.

EAST AFRICAN OTHER RANKS

The general picture of differentials for the EAORs looks to be the same as for the WAORs (Tables 49, 50, 53, 54, 59 and 60). There were more diseases, and important ones, from which the East Africans suffered at lower rates than the Indian troops and *vice versa*. The degree of intensity, however, varied for each disease. For instance, dysentery was prevalent at 2.3 times and 3.1 times higher rate among the EAORs than the Indian rate in 1944 and 1945 respectively. This disease had only 20 per cent. and 40 per cent. higher rates among WAORs during the two years respectively. Pneumonia rates for the EAORs in the two years were 2.7 times and 2.3 times of the Indian rates; whereas they were 4.1 times and 6.7 times the Indian rates for the West Africans. Of the diseases that inflicted heavier morbidity on the East and West Africans, the major difference lies in their respective reactions to typhus. East Africans suffered 5.8 times more than the Indians from this disease in

1944 and 1.9 times more in 1945. The corresponding rates for the West Africans were only 1/3 rd and 1/10th of the Indian rates. PUO among the EAORs was 1/10th of the Indians in 1944 but 11.8 times more in 1945.

As in the case of the WAORs, most of the important causes of morbidity showed consistently lower rates for the East Africans when compared with the corresponding Indian rates. NYD fever was about half as prevalent in EAORs as in the Indian troops; malaria at 20 to 33 per cent., diarrhoea and minor septic diseases each at 60 per cent. common cold at 24 to 40 per cent. and "digestive diseases other than diarrhoea" between 30 to 80 per cent. of the Indian rates.

Venereal diseases, skin diseases, PUO, mental diseases, heat effects, dengue and enteric group of fevers alternated between one year of greater morbidity among the Indian troops with another of greater morbidity among the EAORs. The widest variations among them were registered by PUO, due probably to the greatly falling rates for Indian troops in 1945. It caused only 1/10th of the Indian morbidity among EAORs during 1944 but 11.8 times the Indian morbidity during 1945.

The extent of lower East African rates from some other diseases are given below:—

Hepatitis was 30 to 50 per cent. of the Indian rate; scabies 5 to 25 per cent.; eye diseases and tonsillitis each 50 to 70 per cent.; mumps 1 per cent.; influenza 10 per cent. each year; and tuberculosis 10 to 60 per cent. Diphtheria caused no sickness among the EAORs. Differentials on specific causes and groups of causes clearly bring out the fact that EAORs like the WAORs, generally suffered sickness at lower rates than the Indian troops.

CONCLUSIONS

Important causes of morbidity from the point of view of absolute rates were not the causes that generally provided scope for large differences between the rates of Indian and British troops. On the other hand, diseases which had low over-all incidence rates, e.g. heat effects, caused comparatively higher rates of admissions among the British troops. Hepatitis in the first two years was, similarly, more frequent among the British troops. Some other diseases in respect of which minor differences were observed were: tonsillitis, skin diseases, enteric fevers, typhus (till 1944) and diphtheria.

The diseases from which Indian troops suffered more than the British troops during the period were: common cold, scabies, eye diseases, mumps, respiratory diseases and tuberculosis. The largest such difference has been observed for mumps.

Higher morbidity rates were registered by the WAORs than the Indian troops in respect of the following diseases: venereal diseases, pneumonia, dysentery, "other respiratory diseases", enteric group of fevers (in 1945 only) and PUO.

NYD fever, malaria, minor septic diseases, diarrhoea, skin diseases, common cold, scabies, eye diseases, mumps, tuberculosis and typhus were more prevalent among the Indian troops.

Hepatitis, minor septic diseases, enteric group of fevers and heat effects alternated between one year of higher Indian rate and another of higher WAORs rate during 1944 and 1945.

Morbidity differences seen in respect of the WAORs were generally repeated in the case of the East African troops, with the only difference that the extent of the variation was not the same.

TABLE 47

Differentials between British and Indian troops, based on crude absolute and relative rates of morbidity: SEAC (Indo-Burma Front) 1942

Diseases	Relative Morbidity Rates 1942			Absolute Morbidity Rates 1942		
	Indian Troops	British Troops	Differ- ential	Indian Troops	British Troops	Differ- ential
Common cold ..	1.71	1.12	0.65	14.56	11.06	0.7
Dengue ..	0.26	3.73	14.35	2.20	36.87	16.8
Dysentery ..	5.82	8.81	1.5	49.42	87.18	1.8
Hepatitis ..	0.07	0.56	8.0	0.57	5.56	19.7
Malaria ..	49.25	33.03	0.7	418.33	326.89	0.8
Minor septic diseases	3.31	5.22	1.6	28.16	51.64	1.8
Scabies ..	1.90	0.72	0.4	16.11	7.17	0.4
Venereal diseases ..	5.27	6.66	1.3	44.75	65.92	1.5
ENT diseases ..	1.84	1.87	1.0	15.65	18.54	1.2
Eye diseases other than trachoma ..	1.11	0.47	0.4	9.41	4.68	0.5
Tonsillitis ..	0.33	1.38	4.2	2.81	13.70	4.9
Diarrhoea ..	2.97	4.07	1.4	25.27	40.31	1.6
Skin diseases ..	1.41	3.62	2.6	11.98	35.85	3.0
NYD fever ..	2.91	1.51	0.5	24.73	14.98	0.6
PUO ..	0.38	1.99	0.5	3.27	19.66	6.0
Mumps ..	1.17	0.01	0.08	9.96	0.12	0.01
Influenza ..	1.33	0.37	0.3	11.30	3.71	0.33
Pneumonia ..	0.45	0.12	0.3	3.86	1.18	0.3
Mental diseases ..	0.17	0.28	1.6	1.41	2.77	2.0
Diphtheria ..	..	0.07	..	..	0.74	..
Other-respiratory diseases ..	2.68	2.06	0.8	22.80	20.36	0.9
Other-digestive diseases ..	2.50	6.10	2.44	21.22	60.39	2.8
Heat effects ..	0.03	1.06	35.3	0.21	10.47	49.9
Enteric group of fevers	0.07	0.21	3.0	0.56	2.07	3.7
Typhus fever ..	0.03	0.06	2.0	0.22	0.64	3.0
Tuberculosis ..	0.25	0.10	0.4	2.11	1.00	0.5

TABLE 48

Differentials between British and Indian troops, based on crude absolute and relative rates of morbidity: SEAC (Indo-Burma Front)
1943

Diseases	Relative Morbidity Rates 1943			Absolute Morbidity Rates 1943		
	Indian Troops	British Troops	Differ- ential	Indian Troops	British Troops	Differ- ential
Common cold ..	3.20	1.21	0.4	34.37	19.01	0.5
Dengue ..	0.03	1.51	50.3	0.33	23.86	72.3
Dysentery ..	3.16	7.76	2.5	33.91	122.24	3.6
Hepatitis ..	0.17	1.69	9.9	1.88	26.58	14.1
Malaria ..	44.66	35.51	0.8	478.90	559.64	1.2
Minor septic diseases	3.28	3.82	1.2	35.16	60.17	1.7
Scabies ..	2.48	0.91	0.4	26.61	14.29	0.5
Venereal diseases ..	6.67	8.49	1.3	71.47	133.78	1.9
ENT diseases ..	1.80	2.11	1.2	19.25	33.23	1.7
Eye diseases other than trachoma ..	1.60	0.70	0.44	17.14	11.10	0.6
Tonsillitis ..	0.31	1.40	4.5	3.37	22.05	6.5
Diarrhoea ..	2.61	4.46	1.7	27.97	70.35	2.5
Skin diseases ..	2.24	2.81	1.25	24.01	44.35	1.8
NYD fever ..	5.54	3.00	0.54	59.45	47.36	0.8
PUO ..	0.92	1.66	1.8	9.88	26.22	2.6
Mumps ..	0.57	0.03	0.05	6.14	0.52	0.08
Influenza ..	0.25	0.32	1.3	2.70	5.05	1.9
Pneumonia ..	..	..	..	..	..	..
Mental diseases ..	0.29	0.39	1.3	3.10	6.19	2.0
Diphtheria ..	0.01	0.07	7.0	0.12	1.17	9.7
Other respiratory diseases ..	3.01	1.75	0.6	32.25	27.56	0.8
Other digestive diseases ..	3.32	5.11	1.5	35.57	80.45	2.3
Heat effects ..	0.02	0.33	16.5	0.23	5.12	22.3
Enteric group of fevers	0.05	0.09	1.4	0.53	1.43	2.7
Typhus fever ..	0.09	0.10	1.1	0.95	1.63	1.7
Tuberculosis ..	0.14	0.05	0.36	1.53	0.87	0.6

TABLE 49
Differential between Indian, British, West African and East African Troops, based on Crude absolute and relative rates of Morbidity, SEAC (Indo-Burma Front) 1944

Diseases	Relative Morbidity Rates—1944						Absolute Morbidity Rates—1944					
	Indian Troops			Differentials			Indian Troops			Differentials		
	British Troops	WA-ORs	EA-ORs	British Troops	WA-ORs	EA-ORs	British Troops	WA-ORs	EA-ORs	British Troops	WA-ORs	EA-ORs
Common cold	3.68	1.10	3.11	0.4	0.3	0.84	31.91	16.90	5.69	13.47	0.5	0.4
Dengue ..	0.05	0.08	0.20	7.6	1.6	4.0	0.43	4.61	0.40	0.88	10.7	0.9
Dysentery	4.26	8.43	19.74	1.8	2.0	4.6	37.00	92.53	43.68	85.36	2.5	1.2
Hepatitis	1.36	3.32	0.72	1.9	2.44	0.5	11.78	31.02	17.19	3.13	2.6	1.5
Malaria ..	36.36	6.25	11.63	0.2	0.2	0.3	315.68	364.16	32.37	50.32	1.1	0.1
Minor septic diseases..	3.19	4.89	3.96	1.1	1.5	1.2	27.70	44.46	25.31	17.12	1.6	0.6
Scabies ..	2.43	0.97	0.68	0.4	0.3	0.1	21.09	11.78	3.53	1.14	0.5	0.05
Veneral diseases	4.22	14.48	7.05	1.15	3.4	0.2	36.67	59.04	75.04	30.50	1.6	0.8
EENT diseases	2.04	1.51	1.36	1.01	0.74	0.7	17.69	25.12	7.81	5.90	1.4	0.44
Eye diseases other than trachoma	1.37	0.72	1.49	0.5	1.1	1.1	11.93	8.74	7.73	6.21	0.7	0.6
Tonsillitis	0.31	0.31	0.32	3.3	1.0	1.03	2.73	12.55	1.60	1.41	4.6	0.5
Diarrhoea	4.01	6.93	5.08	1.7	1.2	1.3	34.78	84.42	24.14	21.97	2.4	0.7
Skin diseases	2.88	2.58	2.25	0.94	0.9	0.8	24.35	32.99	13.34	9.73	1.4	0.5
NYD fever	12.10	6.74	13.32	0.97	0.6	1.1	105.07	182.35	34.91	57.63	1.4	0.3
PUO ..	0.25	0.43	0.07	3.04	1.7	0.3	2.19	9.21	2.22	0.31	4.2	1.0
Mumps ..	0.61	0.02	0.07	0.03	0.4	0.11	5.31	0.20	1.15	0.31	0.04	0.1
Influenza	0.07	0.00	0.00	1.14	7.0	5.5	2.82	0.84	11.63	7.62	0.3	0.06
Pneumonia	0.32	2.24	1.76	0.2	1.1	1.7	4.28	10.11	2.78	3.61	1.6	0.05
Mental diseases	0.83	0.54	0.83	1.7	1.1	1.7	0.04	0.69	26.81	17.25	0.6	0.8
Diphtheria	0.00	0.06	0.06	0.5	1.7	2.2	25.64	19.41	26.81	27.73	0.8	1.1
Other respiratory diseases	2.95	5.18	6.41	1.0	0.9	0.5	34.80	49.76	19.03	9.33	1.4	0.3
Other digestive diseases	4.01	3.67	2.16	0.36	0.7	0.3	0.53	4.34	0.22	0.08	8.2	0.4
Heat effects	0.06	0.04	0.06	0.3	1.5	3.5	0.17	0.77	0.13	0.31	4.5	0.8
Enteric group of fevers	0.02	0.03	0.07	0.3	0.6	11.8	1.77	5.15	0.61	10.26	2.9	0.34
Typhus fever	0.20	0.12	0.37	2.1	0.6	0.3	1.19	0.38	0.43	0.17	0.32	5.8
Tuberculosis	0.14	0.09	0.04	0.03	0.6	0.6	1.19	0.38	0.43	0.17	0.32	0.1

TABLE 50
Differentials between British, West African and East African Troops and Indian Troops, based on Crude absolute and relative rates of Morbidity, SEAC (Indo-Burma Front) 1945

Diseases	Relative Morbidity Rates—1945						Absolute Morbidity Rates—1945					
	British Troops			Differentials			Indian Troops			Differentials		
	Indian Troops	British Troops	WA-ORs	EA-ORs	British Troops	WA-ORs	EA-ORs	Indian Troops	British Troops	WA-ORs	EA-ORs	Differentials
Common cold	5.20	2.08	1.67	1.25	0.4	0.3	0.2	16.43	10.76	5.03	3.99	0.6
Dengue ..	0.23	0.33	0.05	0.08	1.4	0.2	0.3	0.74	1.71	0.16	0.24	0.3
Dysentery	3.91	8.59	5.57	11.92	2.2	1.4	3.05	12.35	44.41	16.80	37.89	2.3
Hepatitis	3.09	4.28	1.61	1.45	1.4	0.5	0.5	9.76	22.11	4.85	4.61	3.6
Malaria ..	14.46	15.65	2.60	3.16	1.1	0.2	0.2	45.63	80.88	7.86	10.04	2.3
Minor septic diseases ..	5.65	7.06	6.34	3.66	1.2	1.1	0.6	18.76	36.51	19.13	11.62	1.8
Scabies ..	2.64	0.69	0.76	0.66	0.3	0.3	0.25	8.34	3.59	2.28	2.11	1.9
Veneral diseases	10.08	8.53	17.05	19.57	0.84	1.7	1.9	31.81	44.07	51.44	62.19	0.4
ENT diseases	2.81	3.38	1.97	1.68	1.2	0.7	0.6	8.85	17.45	5.94	5.33	1.4
Eye diseases other than trachoma	2.81	1.59	2.60	1.87	0.6	0.9	0.7	8.87	8.23	8.35	5.95	0.7
Tonsillitis	0.72	2.36	0.47	0.48	3.3	0.6	0.7	2.27	12.20	1.43	1.54	5.4
Diarrhoea	3.85	4.60	3.22	2.37	1.2	0.8	0.6	12.16	23.79	9.72	7.54	2.0
Skin diseases	4.95	6.57	5.15	5.92	1.3	1.0	1.2	15.62	33.95	12.52	18.83	2.2
NYD fever	6.21	5.04	4.71	2.90	0.8	0.8	0.5	19.59	26.06	14.21	9.22	1.3
PUO ..	0.09	0.42	0.29	1.00	4.7	3.2	11.1	0.27	4.17	0.88	3.17	8.0
Mumps ..	1.50	0.07	0.63	0.11	0.05	0.4	0.1	4.73	0.39	1.89	0.34	0.1
Influenza	0.13	0.04	..	0.01	0.3	..	0.1	0.40	0.22	..	0.05	0.5
Pneumonia	0.83	0.14	5.83	1.90	0.2	7.0	2.3	2.63	0.72	17.38	6.05	0.3
Mental diseases	1.69	3.04	1.12	2.04	1.8	0.7	1.2	5.33	15.72	3.37	6.48	3.0
Diphtheria	0.02	0.10	7.16	6.06	5.0	1.6	1.3	0.06	0.54	..	..	9.0
Other respiratory diseases	4.58	2.60	2.77	3.99	0.6	0.6	0.8	14.47	13.45	21.60	19.26	0.9
Other digestive diseases	4.75	4.48	0.08	0.08	0.9	1.6	1.6	14.99	23.15	8.35	12.68	1.5
Heat effects	0.05	0.38	0.12	0.03	7.6	1.6	0.6	0.16	2.00	0.23	0.24	12.5
Enteric group of fevers	0.05	0.07	0.03	0.03	1.4	2.4	0.6	0.15	2.00	0.36	0.10	2.3
Typhus fever	0.32	0.17	0.03	0.59	0.5	0.1	1.9	1.00	0.90	0.10	1.87	0.9
Tuberculosis	0.39	0.10	0.16	0.24	0.3	0.4	0.6	1.24	0.52	0.49	0.77	0.4

TABLE 51

Table of Differentials: 1942: SEAC (Indo-Burma Front)

Specialist Groups	Relative Casualty Rates			Absolute Morbidity Rates		
	Indian Troops	British Troops	Differential	Indian Troops	British Troops	Differential
(1) Infective and parasitic diseases ..	64.56	57.55	0.89	574.88	591.10	1.03
(2) Allergic, endocrine system, metabolic, and nutritional diseases ..	0.01	0.00	..	0.12	0.04	0.33
(3) Mental, psychoneurotic and personality disorders ..	0.16	0.27	1.7	1.41	2.77	1.9
(4) Diseases of the nervous system and sense organs ..	2.81	2.26	0.8	25.06	23.22	0.9
(5) Diseases of the circulatory system ..	0.58	0.55	0.95	5.19	5.60	1.1
(6) Diseases of the respiratory system ..	6.21	4.87	0.8	55.34	50.02	0.90
(7) Diseases of the digestive system ..	5.22	9.80	1.9	46.49	100.70	2.2
(8) Diseases of the skin and cellular tissue ..	1.42	3.84	2.7	12.63	39.48	3.1
(9) Symptoms, senility and ill-defined conditions ..	3.15	3.37	1.1	28.00	34.64	1.2
(10) All other diseases ..	11.26	13.82	1.23	100.31	141.98	1.4
(11) All diseases ..	95.39	96.36	1.0	849.45	989.56	1.2
(12) All non-battle injuries	4.11	3.19	0.8	36.59	32.80	0.9
(13) All battle injuries ..	0.50	0.45	0.9	4.46	4.66	1.0
(14) All cases ..	100.00	100.00	100.00	890.50	1,027.01	1.2

TABLE 52

Table of Differentials: 1943: SEAC (Indo-Burma Front)

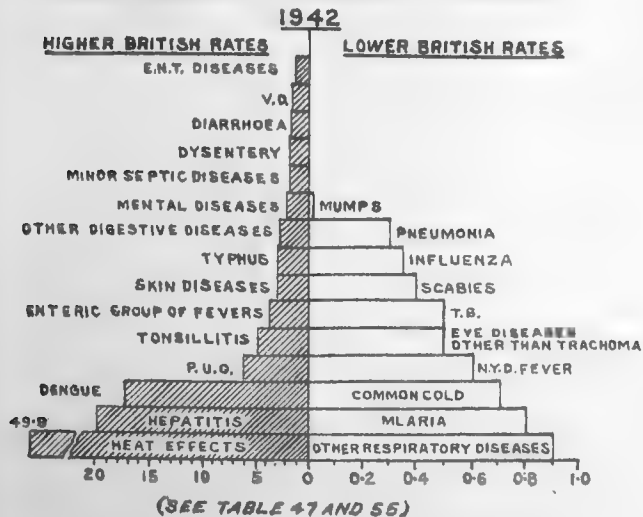
Specialist Groups	Relative Casualty Rates			Absolute Morbidity Rates		
	Indian Troops	British Troops	Differential	Indian Troops	British Troops	Differential
(1) Infective and parasitic diseases	59.28	57.90	0.98	665.45	954.67	1.4
(2) Allergic, endocrine system, metabolic and nutritional diseases	0.03	0.04	1.33	0.30	0.72	2.4
(3) Mental, psychoneurotic and personality disorders	0.28	0.37	1.3	3.10	6.19	2.0
(4) Diseases of the nervous system and sense organs	3.24	2.69	0.8	36.40	44.33	1.2
(5) Diseases of the circulatory system	0.44	0.51	1.2	4.97	8.49	1.7
(6) Diseases of the respiratory system	6.47	4.47	0.69	72.70	73.67	1.01
(7) Diseases of the digestive system	5.66	9.15	1.6	63.54	150.80	2.4
(8) Diseases of the skin and cellular tissue	2.14	2.69	1.3	24.01	44.35	1.8
(9) Symptoms, senility and ill-defined conditions	6.18	4.46	0.7	69.34	73.58	1.06
(10) All other diseases	11.80	13.28	1.1	132.49	219.03	1.6
(11) All diseases	95.52	95.57	1.0	1,072.29	1,575.82	1.5
(12) All non-battle injuries	3.83	3.57	0.9	42.98	58.95	1.3
(13) All battle injuries	0.65	0.86	1.3	7.35	14.13	1.9
(14) All cases	100.00	100.00		1,122.63	1,648.90	1.5

TABLE 53

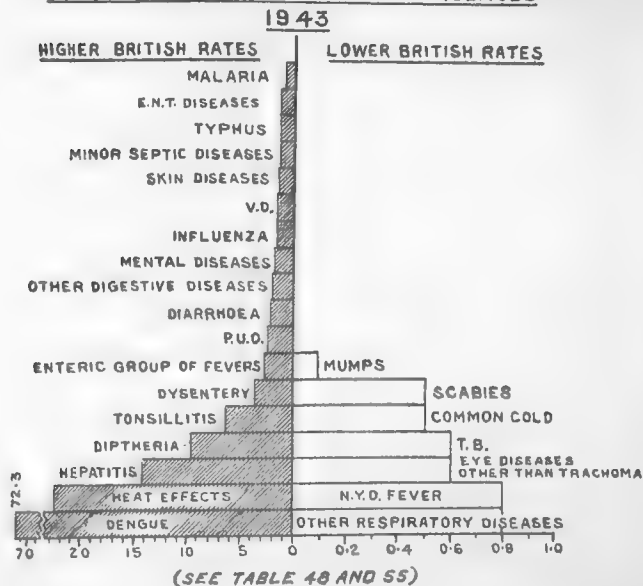
Table of Differentials: 1944: SEAC (Indo-Burma Front)

Specialist groups	Relative Casualty Rates				Differentials			Absolute Morbidity Rates				Differentials		
	Indian Troops	British Troops	WA-ORs	EA-ORs	British Troops	WA-ORs	EA-ORs	Indian Troops	British Troops	WA-ORs	EA-ORs	British Troops	WA-ORs	EA-ORs
(1) Infective and parasitic diseases	48.85	44.28	36.58	41.53	0.9	0.7	0.85	462.17	618.09	204.72	200.31	1.3	0.4	0.4
(2) Allergic, endocrine system, metabolic and nutritional diseases	0.00	0.00	0.00	..	..	..	..	0.02	0.07	0.03	..	3.5	1.5	..
(3) Mental, psychoneurotic and personality disorders ..	0.45	0.74	0.50	0.75	1.64	1.1	1.7	4.28	10.11	2.78	3.61	2.4	0.6	0.8
(4) Diseases of the nervous system and sense organs ..	3.13	2.48	2.78	2.51	0.8	0.9	0.8	29.63	33.86	15.53	12.11	1.1	0.5	0.4
(5) Diseases of the circulatory system	0.48	0.38	0.38	0.53	0.8	0.8	1.1	4.56	5.25	2.14	2.55	1.1	0.5	0.6
(6) Diseases of the respiratory system	6.74	4.72	8.18	10.43	0.70	1.2	1.5	63.72	50.71	45.76	50.27	0.8	0.7	0.8
(7) Diseases of the digestive system	7.36	9.83	7.72	6.49	1.3	1.1	0.9	69.58	134.18	43.17	31.30	1.9	0.6	0.4
(8) Diseases of the skin and cellular tissue	2.57	2.42	2.38	2.02	0.94	0.9	0.8	24.35	32.99	13.34	9.73	1.3	0.5	0.4
(9) Symptoms, senility and ill-defined conditions ..	11.33	11.10	6.63	12.01	1.0	0.6	1.1	107.25	151.56	37.12	57.94	1.4	0.3	0.5
(10) All other diseases ..	10.85	13.27	27.40	13.42	1.2	2.5	1.24	102.62	181.12	153.29	64.71	1.8	1.5	0.6
(11) All diseases ..	91.79	89.23	92.55	89.69	0.97	1.1	0.98	868.19	1,217.95	517.88	432.53	1.4	0.6	0.5
(12) All non-battle injuries ..	4.58	3.78	5.10	4.87	0.8	1.1	1.1	43.35	51.54	28.52	23.51	1.2	0.7	0.5
(13) All battle injuries ..	3.63	6.99	2.35	5.44	1.9	0.7	1.5	34.35	95.46	13.12	26.24	2.8	0.4	0.8
(14) All cases	100.00	100.00	100.00	100.00	..	..	..	945.88	1,364.95	559.53	483.28	1.4	0.6	0.5

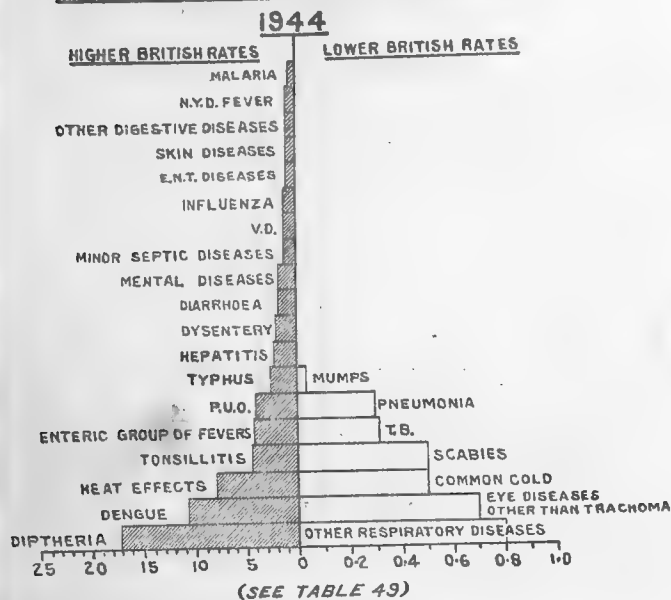
INDO-BURMA FRONT **DIFFERENTIALS BETWEEN BRITISH & INDIAN TROOPS** **BASED ON ABSOLUTE INCIDENCE OF DISEASES**



INDO-BURMA FRONT **DIFFERENTIALS BETWEEN BRITISH & INDIAN TROOPS** **BASED ON ABSOLUTE INCIDENCE OF DISEASES**



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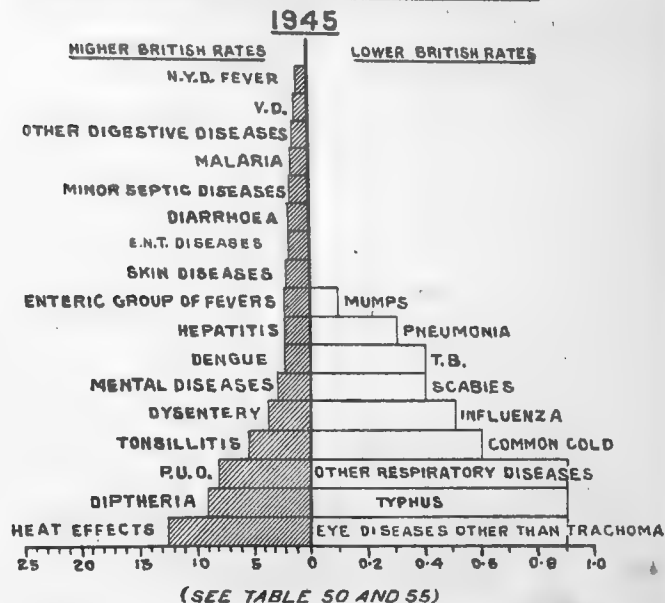


TABLE 54

Table of Differentials: 1945: SEAC (Indo-Burma Front)

Specialist groups	Relative Casualty Rates				Differentials			Absolute Morbidity Rates				Differentials		
	Indian Troops	British Troops	WA-ORs	EA-ORs	British Troops	WA-ORs	EA-ORs	Indian Troops	British Troops	WA-ORs	EA-ORs	British Troops	WA-ORs	EA-ORs
(1) Infective and parasitic diseases	36.25	39.46	30.33	35.60	1.1	0.8	1.0	137.28	239.71	108.80	132.89	1.7	0.8	0.96
(2) Allergic, endocrine system, metabolic and nutritional diseases	0.01	0.00	0.03	..	..	3.0	..	0.05	0.02	0.10	..	0.4	2.0	..
(3) Diseases of the blood and blood forming organs ..	0.72	0.07	..	0.09	0.1	..	0.1	2.75	0.41	..	..	0.15	..	..
(4) Mental, psychoneurotic and personality disorders ..	0.41	2.59	0.94	1.74	1.8	2.3	4.2	5.33	15.72	3.37	6.48	3.0	0.6	1.2
(5) Diseases of the nervous system and sense organs ..	4.68	4.23	3.86	3.02	0.9	0.8	0.6	17.73	25.68	14.29	11.29	1.4	0.8	0.6
(6) Diseases of the circulatory system	0.50	0.63	0.51	0.91	1.3	1.0	1.8	1.89	3.80	1.81	3.41	2.0	1.0	1.8
(7) Diseases of the respiratory system	9.56	6.15	12.78	8.26	0.6	1.3	0.9	36.19	37.37	45.63	30.88	1.03	1.3	0.8
(8) Diseases of the digestive system	7.17	7.73	5.06	5.42	1.1	0.7	0.8	27.15	46.94	18.07	20.22	1.7	0.7	0.7
(9) Diseases of the skin and cellular tissue	4.12	5.59	3.51	5.04	1.4	0.8	1.2	15.62	33.95	12.52	18.83	2.2	0.8	1.2
(10) Symptoms, senility and ill-defined conditions ..	5.25	4.65	4.23	3.32	0.9	0.8	0.6	19.86	28.23	15.09	12.39	1.4	0.8	0.6
(11) All other diseases ..	13.66	13.99	23.23	21.71	1.0	1.7	1.6	51.73	84.97	82.97	81.40	1.6	1.6	1.6
(12) All diseases ..	83.35	85.07	84.47	85.13	1.02	1.0	1.2	315.60	516.80	301.65	317.78	1.6	1.0	1.0
(13) All non-battle injuries ..	9.92	6.74	7.57	10.64	0.7	0.8	1.1	37.57	40.93	27.02	39.72	1.1	0.7	1.1
(14) All battle injuries ..	6.73	8.19	7.96	4.23	1.2	1.2	0.6	25.49	49.77	28.42	15.80	1.9	1.1	0.6
(15) All cases ..	100.00	100.00	100.00	100.00	..	..	..	378.66	607.50	357.08	373.31	1.6	0.9	1.0

TABLE 55

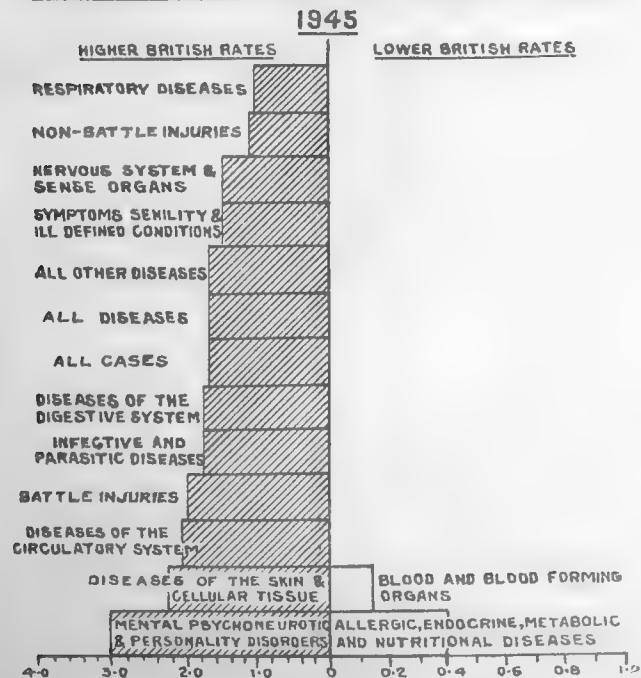
Differentials: SEAC (Indo-Burma Front)

Diseases	Absolute Rates			
	1942	1943	1944	1945
<i>Diseases with higher British Rates</i>				
Dengue	16.8	72.3	10.7	2.3
Dysentery	1.8	3.6	2.5	3.6
Hepatitis	19.7	14.1	2.6	2.3
Minor septic diseases	1.8	1.7	1.6	1.9
Venereal diseases	1.5	1.9	1.6	1.4*
ENT diseases	1.2	1.7	1.4	2.0
Tonsillitis	4.9	6.5	4.6	5.4
Diarrhoea	1.6	2.5	2.4	2.0
Skin diseases	3.0	1.8	1.4*	2.2
PUO	6.0*	2.6	4.2	8.0
Mental diseases	2.0	2.0	2.4	3.0
Other digestive diseases	2.8	2.3	1.4	1.5*
Heat effects	49.9	22.3	8.2	12.5
Enteric group of fevers	3.7	2.7	4.5	2.3
Typhus	3.0	1.7	2.9	..
Malaria .. ..	..	1.2	1.1*	1.8
Influenza .. ..	..	1.9	1.6	..
Diphtheria .. ..	..	9.7	17.3	9.0
NYD fever .. ..	..	..	1.4	1.3*
<i>Diseases with lower British Rates</i>				
Common cold	0.7	0.5	0.5	0.6
Malaria	0.8			
Scabies	0.4	0.5	0.5	0.4
Eye diseases other than trachoma	0.5	0.6	0.7	0.9
NYD fever	0.6	0.8		
Mumps	0.01	0.1	0.04	0.1
Influenza	0.33	..	..	0.5
Pneumonia	0.3	..	0.3	0.3
Other respiratory diseases	0.9	0.8	0.8	0.9
Tuberculosis	0.5	0.6	0.32	0.4
Typhus .. ..	..	..	..	0.9

*Indicates disagreement between differentials based on absolute and relative morbidity rates.

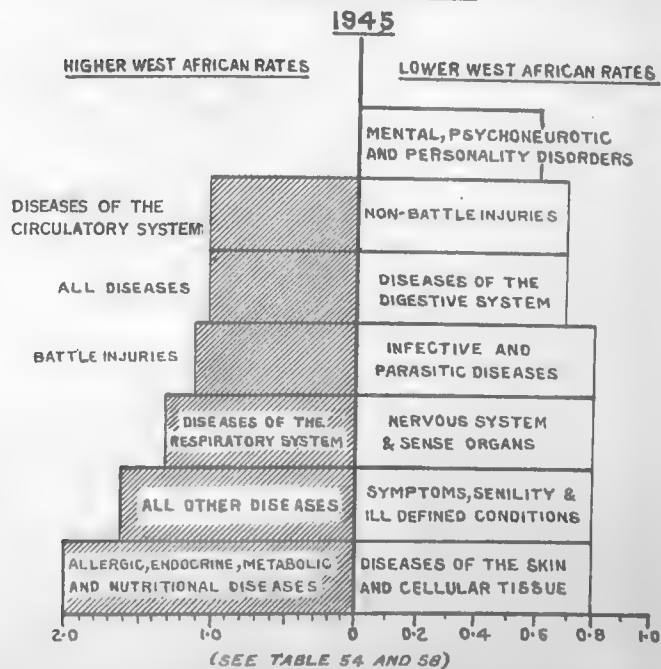
INDO-BURMA FRONT

DIFFERENTIALS BETWEEN BRITISH AND INDIAN TROOPS
BASED ON ABSOLUTE INCIDENCE OF GROUPS OF DISEASES



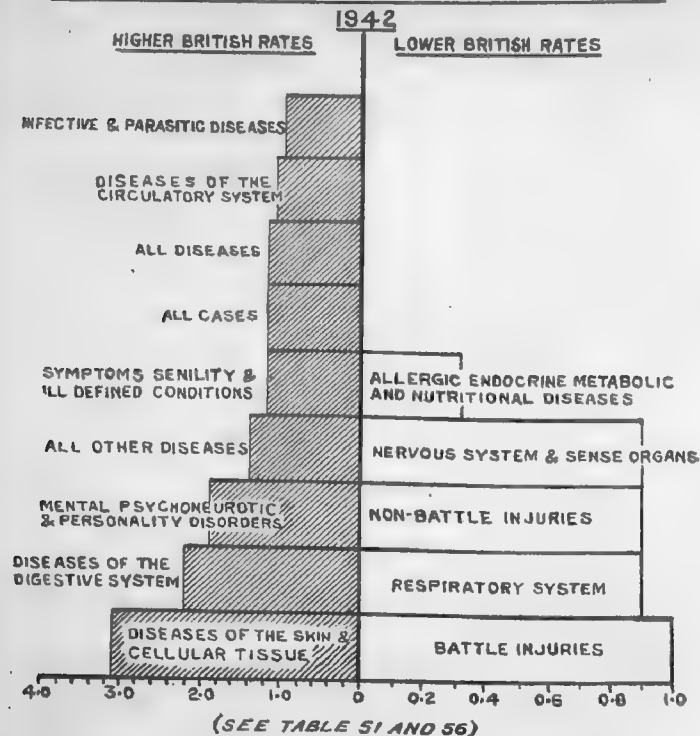
INDO-BURMA FRONT

DIFFERENTIALS BETWEEN WEST AFRICAN (OTHER RANKS)
AND INDIAN TROOPS BASED ON ABSOLUTE INCIDENCE OF
GROUPS OF DISEASES



INDO-BURMA FRONT

DIFFERENTIALS BETWEEN BRITISH & INDIAN TROOPS
BASED ON ABSOLUTE INCIDENCE OF GROUPS OF DISEASES



INDO-BURMA FRONT

DIFFERENTIALS BETWEEN BRITISH & INDIAN TROOPS
BASED ON ABSOLUTE INCIDENCE OF GROUPS OF DISEASES

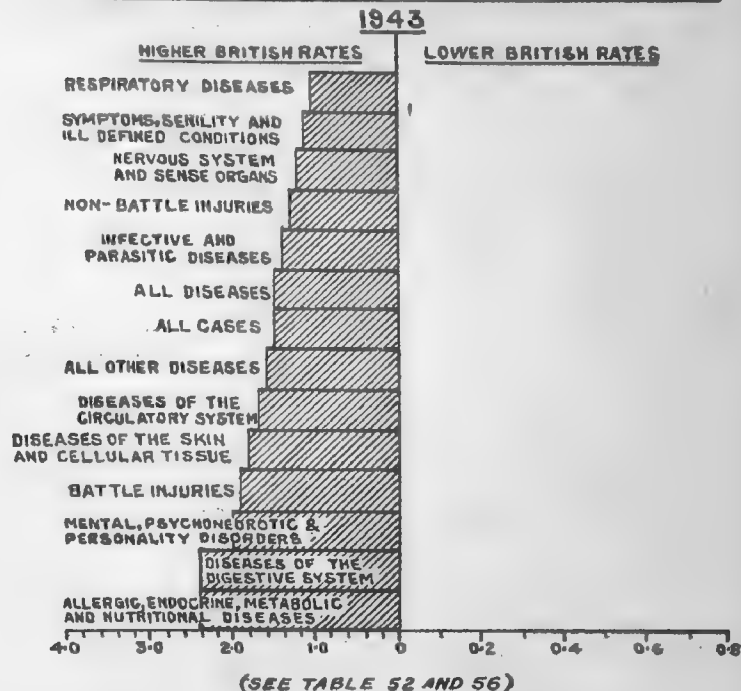


TABLE 56

Differentials: SEAC (Indo-Burma Front)

Diseases	Absolute Rates			
	1942	1943	1944	1945
<i>Groups of diseases with higher Rates for British Troops</i>				
Infective and parasitic diseases	1.03	1.4	1.3	1.7
Mental, psychoneurotic and personality disorders ..	1.9	2.0	2.4	3.0
Diseases of the circulatory system	1.1*	1.7	1.1	2.0
Diseases of the digestive system	2.2	2.4	1.9	1.7
Diseases of the skin and cellular tissue	3.1	1.8	1.3*	2.2
Symptoms, senility and ill-defined conditions ..	1.2	1.06*	1.4	1.4*
All other diseases	1.4	1.6	1.8	1.6
All diseases	1.2	1.5	1.4*	1.6
All cases	1.2	1.5	1.4	1.6
Allergic, endocrine, metabolic and nutritional diseases ..	..	2.4	3.5	..
Diseases of the nervous system and sense organs ..	..	1.2*	1.1*	1.4*
Diseases of the respiratory system .. .. .	..	1.01*	..	1.03*
Battle injuries .. .. .	..	1.9	2.8	1.9
Non-battle injuries .. ..	..	1.3	1.2*	1.1*
<i>Specialist groups with lower rates for British Troops</i>				
Allergic, endocrine, metabolic and nutritional diseases ..	0.33	..	..	0.4
Diseases of the nervous system and sense organs ..	0.9	..	..	..
Diseases of the respiratory system	0.90	..	0.8	..
Battle injuries	1.0	..	..	..
Non-battle injuries	0.9	..	..	..
Diseases of the blood and blood forming organs .. ..	..	..	..	0.15

*Indicates disagreement between differentials based on absolute and relative morbidity rates.

TABLE 57

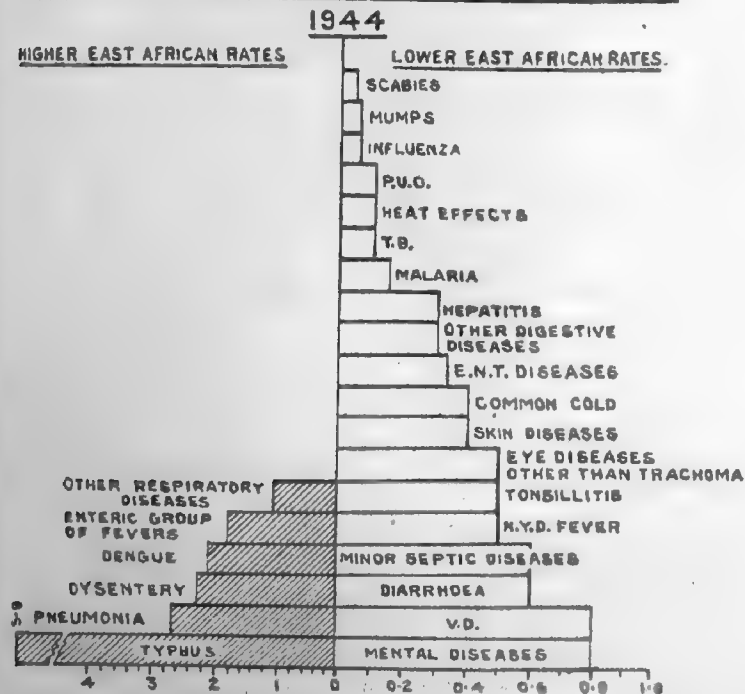
Differentials: SEAC (Indo-Burma Front)

Diseases	Absolute Rates	
	1944	1945
<i>Diseases with higher West African Rates</i>		
Dysentery	1.2	1.4
Hepatitis	1.5	..
Venereal diseases	2.0	1.6
PUO	1.0	3.3
Pneumonia	4.1	6.7
Other respiratory diseases	1.0	1.5
Minor septic diseases .. .. .	..	1.0
Enteric group of fevers .. .. .	..	2.4
Heat effects .. .. .	..	1.4
<i>Diseases with lower West African Rates</i>		
Common cold	0.2	0.3
Dengue	0.9*	0.2
Malaria	0.1	0.2
Minor septic diseases	0.9*	..
Scabies	0.2	0.3
ENT diseases	0.44	0.7
Eye diseases other than trachoma	0.6*	0.9
Tonsillitis	0.6*	0.6
Diarrhoea	0.7*	0.8
Skin diseases	0.5	0.8*
NYD fever	0.3	0.7
Mumps	0.2	0.4
Influenza	0.05	0.00
Mental diseases	0.6*	0.6
Other digestive diseases	0.5	0.5
Heat effects	0.4	..
Enteric group of fevers	0.8*	..
Typhus	0.34	0.1
Tuberculosis	0.4	0.4
Hepatitis .. .. .	..	0.5
Diphtheria .. .. .	..	..

*Indicates disagreement between differentials based on absolute and relative morbidity rates.

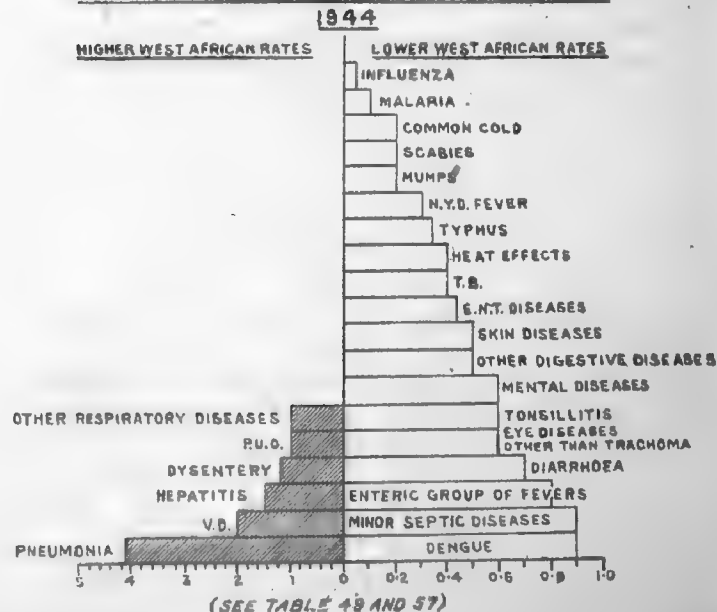
INDO-BURMA FRONT

DIFFERENTIALS BETWEEN EAST AFRICAN (OTHER RANKS) &
INDIAN TROOPS BASED ON ABSOLUTE INCIDENCE OF DISEASES



INDO-BURMA FRONT

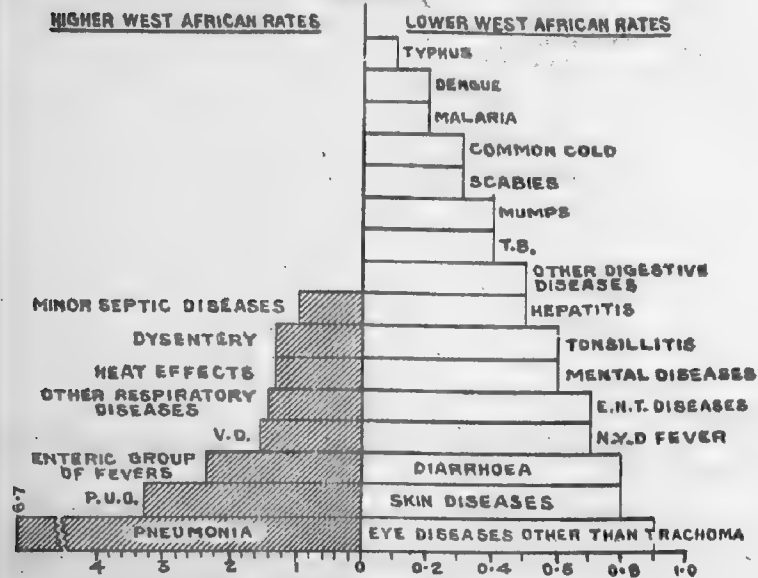
DIFFERENTIALS BETWEEN WEST AFRICAN (OTHER RANKS) &
INDIAN TROOPS BASED ON ABSOLUTE INCIDENCE OF DISEASES



INDO-BURMA FRONT

DIFFERENTIALS BETWEEN WEST AFRICAN (OTHER RANKS) AND
INDIAN TROOPS BASED ON ABSOLUTE INCIDENCE OF DISEASES

1945



INDO-BURMA FRONT

DIFFERENTIALS BETWEEN EAST AFRICAN (OTHER RANKS) AND
INDIAN TROOPS BASED ON ABSOLUTE INCIDENCE OF DISEASES

1945

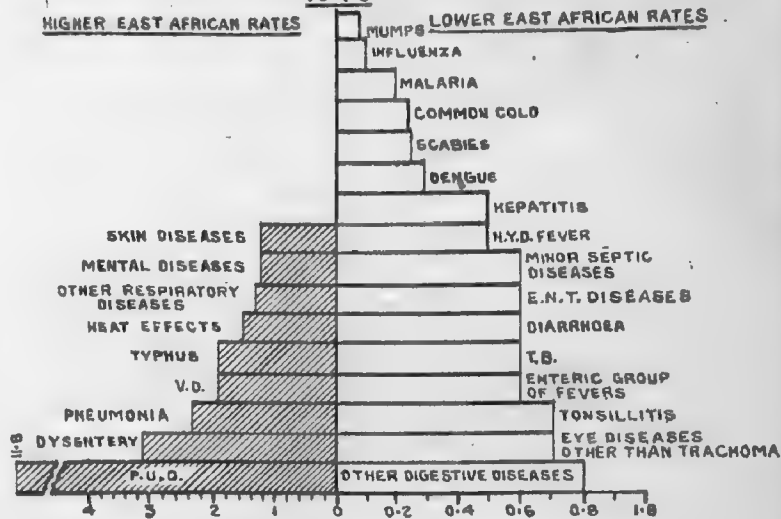


TABLE 58

Differentials (Absolute rates): SEAC (Indo-Burma Front)

Specialist groups	1944	1945
<i>Groups of diseases with high rates for WAORs</i>		
Allergic, endocrine, metabolic and nutritional diseases	1.5	2.0
Diseases of the respiratory system .. .. .	..	1.3
All other diseases	1.5	1.6
Diseases of the circulatory system .. .. .	..	1.0
All diseases .. .. .	..	1.0
Battle injuries .. .. .	..	1.1
<i>Groups of diseases with lower rates for WAORs</i>		
Infective and parasitic diseases	0.4	0.8
Mental, psychoneurotic and personality disorders	0.6*	0.6*
Diseases of the nervous system and sense organs	0.5	0.8
Diseases of the circulatory system	0.5	..
Diseases of the respiratory system	0.7*	..
Diseases of the digestive system	0.6*	0.7
Diseases of the skin and cellular tissue	0.5	0.8
Symptoms, senility and ill-defined conditions	0.3	0.8
All diseases	0.6*	..
Non-battle injuries	0.7*	0.7
Battle injuries	0.4	..
All cases	0.6	0.9

*Indicates disagreement between differentials based on absolute and relative morbidity rates.

TABLE 59

Differentials: SEAC (Indo-Burma Front)

Diseases	Absolute Rates	
	1944	1945
<i>Diseases with higher East African Rates</i>		
Dengue	2.1	..
Dysentery	2.3	3.1
Pneumonia	2.7	2.3
Other respiratory diseases	1.1	1.3
Enteric group of fevers	1.8	..
Typhus	5.8	1.9
Venereal diseases .. .. .	..	1.9
Skin diseases .. .. .	..	1.2
PUO .. .. .	..	11.8
Mental diseases .. .. .	..	1.2
Heat effects .. .. .	..	1.5
<i>Diseases with lower East African Rates</i>		
Common cold	0.4	0.24
Hepatitis	0.3	0.5
Malaria	0.15	0.2
Minor septic diseases	0.6*	0.6
Scabies	0.05	0.25
Venereal diseases	0.8	..
ENT diseases	0.33	0.6
Eye diseases other than trachoma	0.5*	0.7
Tonsillitis	0.5*	0.7
Diarrhoea	0.6*	0.6
Skin diseases	0.4	..
NYD fever	0.5*	0.5
PUO	0.1	..
Mumps	0.06	0.07
Influenza	0.06	0.1
Mental diseases	0.8*	..
Diphtheria	0.00	0.00
Other digestive diseases	0.3	0.8
Heat effects	0.1	..
Tuberculosis	0.1	0.6
Dengue .. .. .	..	0.3
Enteric group of fevers .. .. .	..	0.6

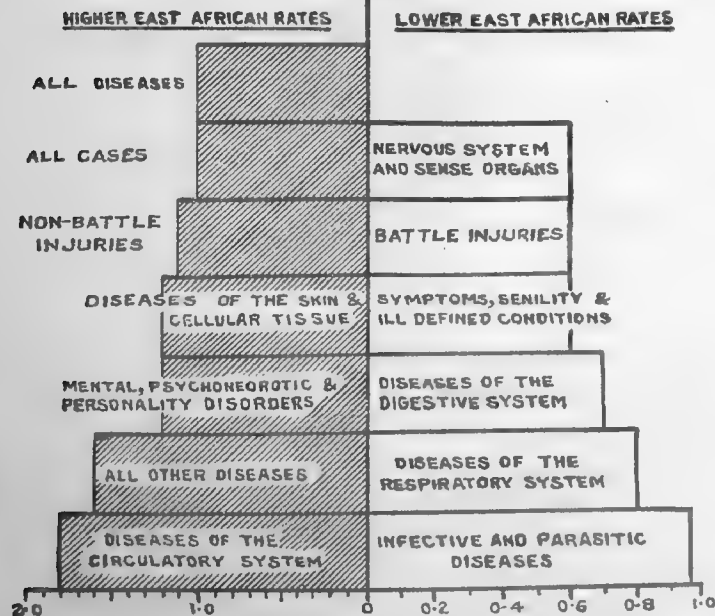
*Indicates disagreement between differentials based on absolute and relative morbidity rates.

INDO-BURMA FRONT

DIFFERENTIALS BETWEEN EAST AFRICAN (OTHER RANKS)
AND INDIAN TROOPS BASED ON ABSOLUTE INCIDENCE OF

GROUPS OF DISEASES

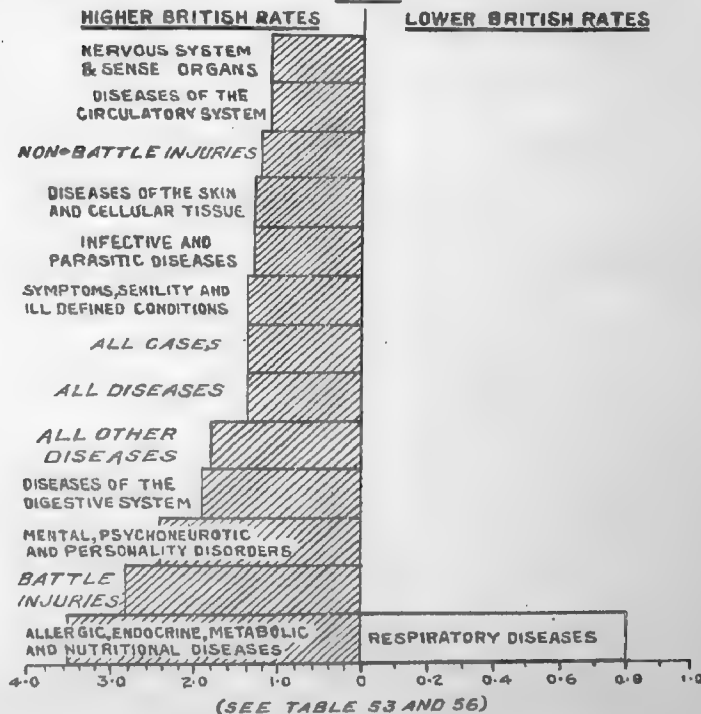
1945



INDO-BURMA FRONT

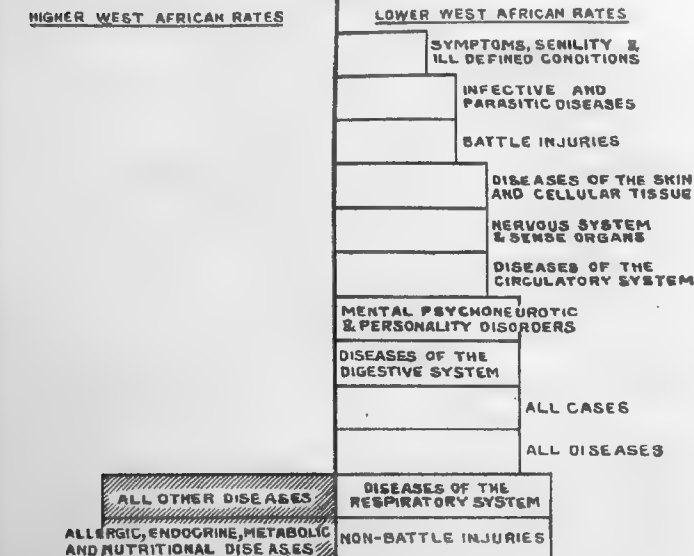
DIFFERENTIALS BETWEEN BRITISH AND INDIAN TROOPS
BASED ON ABSOLUTE INCIDENCE OF GROUPS OF DISEASES

1944



INDO-BURMA FRONT
DIFFERENTIALS BETWEEN WEST AFRICAN (OTHER RANKS)
AND INDIAN TROOPS BASED ON ABSOLUTE INCIDENCE OF
GROUPS OF DISEASES

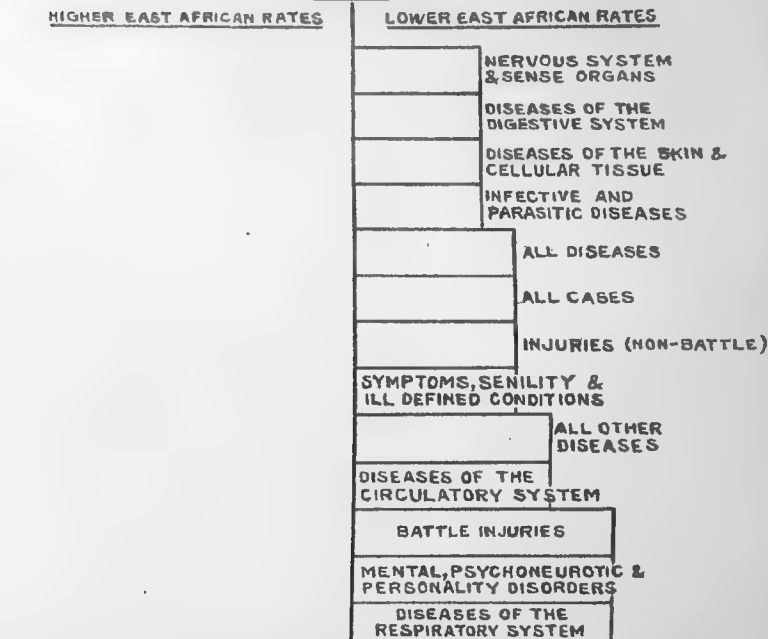
1944



(SEE TABLE 53 AND 58)

INDO-BURMA FRONT
DIFFERENTIALS BETWEEN EAST AFRICAN (OTHER RANKS)
AND INDIAN TROOPS BASED ON ABSOLUTE INCIDENCE OF
GROUPS OF DISEASES

1944



(SEE TABLE 53 AND 60)

TABLE 60
Differentials (absolute rates): SEAC (Indo-Burma Front)

Specialist groups	1944	1945
<i>Groups of diseases with higher rates for EAORs</i>		
Mental, psychoneurotic and personality disorders .. ..	..	1.2
Diseases of the circulatory system ..	..	1.8
Diseases of the skin and cellular tissue ..	..	1.2
All other diseases .. ..	..	1.6
All diseases .. ..	..	1.0
Non-battle injuries .. ..	..	1.1
All cases .. ..	..	1.0
<i>Groups of diseases with lower rates for EAORs</i>		
Infective and parasitic diseases	0.4	0.96*
Mental, psychoneurotic and personality disorders	0.8*	..
Diseases of the nervous system and sense organs	0.4	0.6
Diseases of the circulatory system ..	0.6*	..
Diseases of the respiratory system ..	0.8*	0.8
Diseases of the digestive system ..	0.4	0.7
Diseases of the skin and cellular tissue ..	0.4	..
Symptoms, senility and ill-defined conditions	0.5*	0.6
All other diseases	0.6*	..
All diseases	0.5	..
Total non-battle injuries	0.5*	..
Total battle injuries	0.8*	0.6
All cases	0.5	..

*Indicates disagreement between differentials based on absolute and relative morbidity rates.

Section XVI

MORTALITY SEAC (INDO-BURMA FRONT)

Information about deaths is available for sickness and war wounds only. Mortality from various causes is not available with the result that disease fatality and comparative mortality is not possible to analyse here.

In Table 61 are given available mortality figures for each category of troops separately. It will be seen that in no case was mortality rate as high as 1 per cent., except for British other ranks in 1944 when their mortality rate was 1.08 per cent. The highest figure of war wound mortality ever recorded was 4.3 per 1,000 or 0.43 per cent. for British other ranks in 1944.

VCOs and IORs had total mortality rates of 7.8 per 1,000 in 1942; 5.3 in 1943; 6.6 in 1944 and 3.0 in 1945. The corresponding mortality rates from war wounds were 0.5 in 1943; 2.1 in 1944 and 1.3 in 1945. The difference between these two sets of figures was, each year, accounted for by mortality from the remaining causes.

The difference between the mortality rates of British officers and British other ranks was not unduly wide. The former had rates of 8.0; 4.6; 6.5 and 3.4 per 1,000 whilst the latter registered 5.3 in 1942; 5.6 in 1943; 10.8 in 1944 and 4.1 in 1945. During each of the years 1944 and 1945, war wounds accounted for about half of it in each case. Such was not the case with the African troops as will be seen from the figures in Table 61.

TABLE 61

Deaths in Hospitals—Annual rates per 1,000 strength: SEAC (Indo-Burma Front).

Categories of troops				1942	1943	1944	1945
<i>VCOs and IORs</i>							
Sickness	..	..	NA.	NA.	4.83	4.49	1.69
War wounds	..	..	NA.	NA.	0.46	2.12	1.30
Total	..	..	7.75	5.29	6.61	2.99	
<i>NCs(E)</i>							
Sickness	..	..	NA.	5.7	3.3	0.92	
War wounds	..	..	NA.	0.00	0.1	0.13	
Total ..	..	..	9.4	5.7	3.4	1.05	
<i>WAC(I) and MNS</i>							
Sickness	..	..	1.67	0.63	5.76	..	
War wounds	..	..	..	..	..	..
Total ..	..	..	1.67	0.63	5.76	..	
<i>Indian troops</i>							
Sickness	..	..	NA.	5.62	4.18	1.52	
War wounds	..	..	NA.	0.34	1.61	1.01	
Total ..	..	..	8.13	5.96	5.79	2.53	

TABLE 61—(Contd.)

Categories of troops			1942	1943	1944	1945
<i>WAORs</i>						
Sickness	..	..	..	..	3.82	2.64
War wounds	..	..	..	..	0.43	0.94
Total ..	..	..	..	..	4.25	3.58
<i>EAORs</i>						
Sickness	..	..	..	..	5.02	2.40
War wounds	..	..	..	..	0.79	1.10
Total ..	..	..	..	..	5.81	3.50
<i>BOs</i>						
Sickness	..	..	NA.	4.10	3.17	1.24
War wounds	..	..	NA.	0.45	3.30	2.14
Total ..	..	..	8.00	4.55	6.47	3.38
<i>BORs</i>						
Sickness	..	..	NA.	4.98	6.56	1.49
War wounds	..	..	NA.	0.66	4.27	2.65
Total ..	..	..	5.32	5.64	10.83	4.14

Note—W.A.O.Rs. and E.A.O.Rs. came on the front only in 1944 and 1945.

CHAPTER III

South East Asia Command (Continued); Ceylon Army Command

Section I

INTRODUCTION

In February 1941, the necessity for preparing plans for the defence of, and reinforcements for, Ceylon by India was the subject of discussion between the Government of Ceylon and Army Headquarters (India).¹ It was, however, not anticipated at that time that reinforcements would be required in the near future. It was, therefore, agreed that certain steps must be taken to facilitate the despatch of troops from India should an emergency arise. Headquarters 17th Indian Division was made responsible (under a scheme known as "Lancelot") for this purpose.

Although troops in Ceylon at this time were under the War Office (London), the British Government agreed to India assuming operational administrative responsibility for the defence of Ceylon.² On 22 November, 1941 Army Headquarters (India) assumed this responsibility.³ At this time the 34th Indian Division was made responsible for operational control of troops in Ceylon instead of the 17th Indian Division. From early January 1942, units of the 34th Indian Division began to arrive in Ceylon in small numbers. By February 1942 Ceylon Command began to expand rapidly⁴ and by 14 March 1942 established its headquarters on the re-organised basis.

In the meantime Japan entered the war and the possibility of actual warfare extending to the Indian sub-continent increased. Singapore fell on 15 February 1942. On 8 March Rangoon was occupied by the Japanese forces. By 25 March the situation in Burma had deteriorated. The occupation by the Japanese of the Andaman group of islands had made a threat to India a distinct possibility. The Allied naval strength at this time was at its lowest ebb.⁵ Following the disastrous battle of the Java sea (26/27 February) surviving naval units were withdrawn to Colombo or Australia and Japanese control of the South-West Pacific was at that time complete.

Colombo was bombed on 5 April 1942 (Easter Sunday). Both high level and dive bombing attacks were made on shipping, the harbour area, the race-course and Ratmalana aerodrome. Early in April 1942 Trincomalee was also subjected to a heavy air raid. The town of Trincomalee escaped bombardment but considerable damage

¹ File No. Z/23432/DMS4.

² War Office telegram No. 99620, dated 3-11-1941.

³ Telegram Nos. 17356/G of 8-11-1941 from Armindia to General Colombo and 5298 of 11-11-1941 from General Colombo to Armindia.

⁴ Document No. C/1/36 (Medical Sub-Section, Historical Section, Ministry of Defence).

⁵ File No. 601/7628/H (C.B. 3081 (9) Battle Summaries).

was inflicted on the aerodrome. Heavy casualties were reported during these attacks. Their object underlying these attacks probably was to cripple the naval and air installations in Ceylon.

It was under such circumstances that Ceylon Army Command was taking shape. The South East Asia Command (SEAC) was formed on 15/16 November 1943. The GOC-in-C Ceylon Army Command was placed under the C-in-C Eleventh Army Group in SEAC. In Ceylon Command was also included the army garrison of Cocos Islands (Addu Atoll, Diego Garcia and Cocos). The GOC-in-C Ceylon Army Command was directly responsible for the defence of these areas to the Supreme Allied Commander South East Asia.⁶

After the cessation of hostilities in South East Asia, the Headquarters SEAC was closed in Ceylon on 25 November 1945 and opened in Singapore. The C-in-C East Indies Fleet was, however, unable at this time to move his headquarters from Ceylon. On 1 April 1946 India had ceased to be the base for SEAC and the Rear Headquarters in New Delhi was consequently closed down on 15 April. The responsibilities of India vis-a-vis SEAC were then assumed by the War Office (London) through the Colonial Governors.

In view of the above the figures of morbidity among troops have been dealt with on annual basis from 1942 to 1945.

The Ceylon Army Command was required to submit regularly to the General Headquarters (India) the following medical statistical returns, in addition to the monthly medical liaison letters:—

- (a) Monthly nominal roll of RAMC, IMS, IMD and Lady Nurses (QAIMNS and IMNS).
- (b) Weekly statement showing admissions to hospitals and beds occupied during a week ending on Saturday night.
- (c) Fortnightly return of admissions and discharges of British Service personnel based on India (AFW 3034).
- (d) Monthly dental summary by each dental centre in the Command (AFI 5034).
- (e) Monthly return of sick for the overseas forces (AFA 31-A). It was required to be consolidated for the whole force before despatch.
- (f) Contributions by medical officers of material suitable for inclusion in the medical history of the war.
- (g) Brief monthly report of hygiene officer of the Force.

A major part of the discussion that follows in this chapter has been based on AFA 31-A till December 1943, and on a modified return AFA 31-B, which was adopted only in the SEAC.

Strength figures of various troops in this Command have not been available consistently from a single source. The following sources have, therefore, been used for the purpose:—

- (a) 'Overseas Supplement to the Strength Return of the Defence Services of India', published by Statistical Section, A.G's Branch, General Headquarters (India).

⁶ Supplement to Report to Combined Chiefs of Staff by SAC, SEA, 1943-46 page 73.

- (b) 'Strength Return of the Defence Services India Command', published by Statistical Section AG's Branch, General Headquarters (India).
- (c) AFA 31-B-Field Service Monthly Return of sick amongst troops in operational areas in India.

Monthly strength figures of Indian and British units in Ceylon from January 1942 to September 1943 are available in the publication mentioned at (a) above. British units, other than those based on India, are also included among them. Strength figures in respect of Indian troops for the year 1942 and upto September of 1943 have, therefore, been based on the average for these months. Monthly strengths of Indian units in Ceylon for the remaining months (from October to December 1943) were specially obtained from Indian Army Statistical Organisation, Army Headquarters (India). For the year 1944 the annual average has been arrived at from the strengths relating to each quarter of the year (i.e. on 1 January, 1 April, 1 July and 1 October). These figures were taken from the source given at (b) above. The average strength figures for 1945 are based on the monthly figures given on AFA 31-B.

For British troops a course similar to the one adopted for the Indian troops is followed for the year 1942, 1944 and 1945. Figures for 1943, however, are based on the strength figures of the quarters of that year and not on the monthly information as was the case with the Indian troops.

The steps mentioned above have been taken from year to year for unavoidable reasons but it is hoped that they have not introduced any element of error on the comparability between the figures of one year from another.

It will be seen from the ensuing discussion that the physiography of Ceylon affected, at least in the beginning, the health of troops stationed there a great deal. It should, in this connection, be mentioned that Ceylon has a central mass of hills, 8,292 feet high. The greater part of these hills is covered with jungle interspersed with plantations. These hills in the east have extensive grassy slopes leading ultimately to the cocoanut plantations of Batticaloa. To the north, the country is again jungle extending to a cultivated belt near Jaffna. To the south lies a well cultivated area and the port of Galle, whilst to the west is another belt of tea, rubber and paddy fields between the hills of Colombo. Colombo lies in the west of this Island and Trincomalee to the north-east.

Except across the large paddy fields, away from the main roads, the movement of troops in Ceylon was greatly hampered by hills, marshes and jungle. It was difficult to find a clear range of 2,000 yards in any direction. During the south-west monsoon, May to October each year, landing on the extensive sandy beaches of the west coast was considered to involve great risk and was considered impracticable except by small number of troops.

The climate of Ceylon is variable but is generally hot and humid. Mosquitoes, lice, flies, ticks, mite and fleas were abundant. The troops

were exposed to the danger of diseases like malaria, enteric group of fevers, amoebic and bacillary dysentery, diarrhoea, typhus fever, dengue, infective hepatitis and skin diseases. Water supply was expected to be subject to contamination. Lack of buildings, modern sanitation and the relatively few areas available for hutted accommodation further accentuated the likelihood of the spread of diseases. The incidence of diseases amongst troops was, therefore, expected to be high.

Section II

VICEROYS' COMMISSIONED OFFICERS AND INDIAN OTHER RANKS (VCOs AND IORs)

Absolute rates of incidence from all causes for VCOs and IORs in Ceylon were 933 per 1,000 strength in 1942; 751 in 1943; 666 in 1944 and 507 in 1945, (Table 1) indicating that there were approximately 93 hospital admissions for every 100 VCOs and IORs from some cause or the other, during 1942; $\frac{3}{4}$ th of their number were confined to hospital during 1943; $\frac{2}{3}$ rd in 1944 and a little more than $\frac{1}{2}$ in 1945. Unlike the trend of their morbidity in Burma, where the highest figure was reached in 1943, the incidence of all causes among VCOs and IORs in Ceylon was highest in the beginning during 1942, and continued to fall thereafter to the end of World War II. A similar trend is discernible in the incidence due to all diseases and most of the specific causes given in Table 1. Diseases only accounted for rates of 867 per 1,000 in 1942, 703 in 1943, 614 in 1944 and 464 in 1945.

Since there were no military operations in Ceylon, except two air-raids by the Japanese, war-wounds did not inflict heavier than 1 per 1,000 casualties on the VCOs and IORs in any of the four years under consideration. Therefore the difference between the incidence due to diseases and that due to all causes was always accounted for by local and non-enemy action. The causes of injuries have not been given in the returns on which the figures given in this chapter have been based. It will, however, be seen (Table 3) that the contribution of such injuries to all causes was never more than 8.5 per cent. (1945). It fluctuated between 6 and 8 per cent. during these years. This shows that about 93 per cent. of casualties caused to the VCOs and IORs during these years was by diseases only (also see Table 3).

It may also be mentioned here that the rates of incidence from year to year as indicated on page 155 are significantly different from one another.

These figures show that the differences in the rates of incidence due to 'all causes' and 'all diseases' were not such as could have arisen by chance only during 1943-44, i.e. they were not significant statistically. But those arising during 1942-43 and 1944-45 were not significant and could not have come about by chance only.

In Table 3 relative casualty rates for different groups of diseases are given, which give the percentage share borne by each group against all causes. The grouping of diseases, of Table 3 has been based on "International Statistical Classification of Diseases, injuries and causes of death" World Health Organisation, 1948. In the scheme of diseases, each year, the importance of "infective and parasitic diseases" was very high. These diseases were responsible for 40 per cent. of total casualties in 1942; but for 46 in 1943; 42 in 1944 and only 35 in 1945. It should be remembered here that in this group are included all such major causes as malaria, venereal diseases, minor septic diseases and dysentery etc. Diseases of the digestive system, which include diarrhoea,

were generally the second important cause each year. Digestive diseases caused 9 per cent. of total sickness in 1942; 7 in 1943 and 1944 and 8 in 1945. Diseases which took a heavier toll than that of the digestive diseases, were those with symptoms of senility and ill-defined conditions (10.1 per cent.), injuries (non-enemy action) 7.8 per cent. in 1944; and diseases of "nervous symptoms and sense organs" (9.1 per cent.) and injuries (non-enemy action) 8.5 per cent. in 1945.

The rates of incidence due to 'all causes' and 'all diseases', among VCOs and IORs, 1942-45.

Year	All Causes				All Diseases			
	Rates per cent.	Difference	Standard error	Remarks	Rates per cent.	Difference	Standard error	Remarks
1942 ..	93.3	18.2	5.2	Significant	86.7	16.4	5.7	Significant
1943 ..	75.1				70.3			
1943 ..	75.1	8.5	6.4	Non-Significant	70.3	8.9	6.7	Non-Significant
1944 ..	66.6				61.4			
1944 ..	66.6	15.9	6.9	Significant	61.4	15.0	7.0	Significant
1945 ..	50.7				46.4			

INFECTIVE AND PARASITIC DISEASES

Among the diseases also a very large share of illness, each year, was caused by what has been termed here as 'infective and parasitic diseases' (Table 1). These diseases in themselves were responsible for rates of admissions to hospitals, of 382 per 1,000 strength in 1942, 345 in 1943, 281 in 1944 and 176 in 1945 (Table 1). In terms of relative rates (Table 2), they caused 44 per cent. of all admissions due to diseases in 1942, 49 per cent. in 1943, 46 per cent. in 1944 and 38 per cent. in 1945. In other words, 'infective and parasitic diseases' led to admissions which ranged between 2/5 and 1/2 of all admissions to hospitals due to diseases. As between the various diseases which formed part of 'infective and parasitic diseases', the most important single cause of admissions, among VCOs and IORs, was malaria each year. The rates of admissions for malaria per 1,000 strength of VCOs and IORs were 195 in 1942, 189 in 1943, 155 in 1944 and 65 in 1945 (Table 1). The corresponding relative rates were 22 per cent. of all diseases in 1942, 27 per cent. in 1943, 25 per cent. in 1944 and 14 per cent. in 1945 (Table 2). Half of the morbidity caused by 'the infective and parasitic diseases' each year was caused by malaria alone, except in 1945, when it was a little more than one third.

The rates of absolute incidence due to malaria alone are not significant statistically in their difference from year to year except during 1944-45, as will be seen from the figures given on next page.

Significance of malaria incidence 1942-45.

Year		Rates per cent.	Difference	Standard error	Remarks
1942	..	19.5	0.6	5.6	Not Significant
1943	..	18.9			
1943	..	18.9	3.4	5.3	Not Significant
1944	..	15.5			
1944	..	15.5	9.0	4.4	Significant
1945	..	6.5			

The declining morbidity, therefore, must have been due to the preventive measures adopted in the South East Asia. The rate of 65 per 1,000 in 1945 is very low indeed. It is lower than the corresponding rate for VCOs and IORs in India in that year, which was 76 per 1,000.

The periodicity in the incidence of malaria and a closer study of the manner in which it was reduced during this period, is provided by figures of its monthly incidence given below:—

Monthly incidence per 1,000 of malaria among the VCOs and IORs 1942-45.

Month		1942	1943	1944	1945
January	..	2.51	9.83	9.36	19.24
February	..	18.52	12.88	4.47	6.56
March	..	31.41	13.43	4.85	4.19
April	..	38.79	31.25	8.62	4.04
May	..	48.07	20.98	24.75	4.05
June	..	30.08	19.33	19.21	3.95
July	..	10.61	8.81	16.23	3.59
August	..	9.93	10.71	9.75	5.51
September	..	10.28	13.62	9.05	2.35
October	..	7.95	12.30	16.83	3.01
November	..	13.16	16.30	16.85*	3.68
December	..	11.61	17.72	23.59	8.39

These figures provide an interesting study. The highest average monthly rate ever recorded was 48.1 per 1,000 strength in May 1942 and the lowest was 2.35 per 1,000 strength in September 1945. The latter is 1/20th of the former. The most probable cause for the low rate (2.5) shown against January 1942 may be due to underestimation. Therefore if this figure be left out of our present consideration a certain periodicity in the prevalence of malaria can be traced in the above table. Usually, April to June were the months of peak incidence in any year, except 1945. May contributed the largest share in any year.

*Estimated.

Another peak, lower than the first each year, was in November and December perhaps due to the north-easterly monsoons. The trend towards a higher incidence in these latter months each year seems to have started, (as in 1943 and 1944) sometimes in October and ended, (as in 1942-43 and 1944-45) in the succeeding months of January. These tendencies were not present in the monthly incidence during 1945 due perhaps to the specific measures taken in the Command to combat it and keep its morbidity as low as possible. During most of the months, in 1945, malaria incidence ranged between as low figures as 2.4 and 6.6 per 1,000 strength.

A declining trend is generally noticeable also in the figures of a particular month from year to year. For instance in February 1942 the incidence was 18.52 per 1,000, in February 1943 12.88, in February 1944 4.47 and in February 1945 6.56, indicating a uniform decline in malaria morbidity. Some months like July and December will not be found in agreement with this general tendency. Between July 1942 and July 1943 the difference, on the basis of the standard error of the difference between two proportions, is not such as could arise by chance. It might, therefore, be that the two samples tested in these months, were not drawn from quite similar populations or else the severity of disease might have varied.

It may be added that troops in Ceylon were undergoing training in areas which were highly infected with malaria and other diseases. So a higher rate would usually be reported as and when they were engaged in such exercises. Two monsoon seasons, one in May-June each year and the other in December, further increased mosquito breeding and consequently increased incidence of malaria. All these tendencies are visible in the monthly figures of incidence given on last page. The malaria control measures, resulted in the fall in the rates of incidence due to malaria considerably.

Venereal diseases caused very heavy morbidity among the VCOs and IORs and were next to malaria only in their incidence. The respective incidence rates in the four years were 46.6, 44.5, 39.8 and 36.8 per 1,000 (Table 1). These figures show a falling rate from year to year. The magnitude of the fall was considerable in 1944 when it declined by about 10 per cent. Up to 1944 venereal diseases rate was about 1/4th of malaria rate for the VCOs and IORs but in 1945 it was more than half of the malaria rate. The reason for this high relative rate of venereal diseases in comparison to malaria rate lies mainly in a great reduction of the latter. The relative rates for venereal diseases during the period under study were 5.4 per cent. in 1942, 6.3 per cent. in 1943, 6.5 per cent. in 1944 and 7.9 per cent. in 1945 (Table 2). These figures should not be taken as representing an increasing incidence of venereal diseases from year to year. What they show is an increasing share of venereal diseases in all diseases, whose total incidence kept on falling during this period. Incidence of venereal diseases also fell, but at a lower rate as against the fall in the incidence of the rest of the diseases.

The incidence of venereal diseases fluctuated round 4 per cent. per annum, as was the case with VCOs and IORs in Burma and India

at this time. Having nothing much to do with climate as such, and being mainly connected with "the mental climate" of soldiers, it should naturally be difficult to find any trend or periodicity in the incidence of these diseases. It may be added that it has been frequently observed, that the incidence is low during the period of combat or exercises and tends to increase during periods of rest and leave, especially when troops are located in or near urban areas. Figures of monthly incidence given below bear out the truth of this statement:—

*Monthly incidence rate per 1,000 of venereal diseases among VCOs and IORs
1942-45*

Month			1942	1943	1944	1945
January	..	..	4.6	3.3	2.3	1.1
February	..	..	3.3	2.9	2.5	2.0
March	..	..	4.7	5.1	3.2	5.3
April	..	..	4.4	5.1	4.5	3.5
May	..	..	3.9	3.3	3.8	3.6
June	..	..	4.9	4.5	3.9	1.1
July	..	..	3.2	3.1	4.7	2.3
August	..	..	3.6	3.0	3.5	2.0
September	..	..	4.3	4.5	3.3	3.2
October	..	..	3.3	3.2	3.0	4.2
November	..	..	3.7	3.6	3.0*	5.0
December	..	..	4.0	2.9	3.2	4.5

*Estimated.

The lowest rate recorded for any month was 1.1 per 1,000 in January and June 1945, whereas the highest rate of 5.3 per 1,000, was recorded in March, also of the same year. The lower trend of incidence of these diseases in 1945 is clearly noticeable in the general spread of monthly rates in that year. For about half the number of months in the year the rates recorded were the lowest during the period under consideration. It will also be seen that generally a month of high incidence appears to have been followed regularly by one or two of lower incidence, suggesting the possibility of a certain number of these troops, who might have been habitual offenders, supplied temporary fillip to the general low incidence periodically, till they got well to start off at it again.

It must, however, be stated that an annual rate of 40-50 per 1,000 (or 4 to 5 per cent.) is a figure on the high side of morbidity from these diseases. As far as available figures could be studied, an incidence at equal, and more than at this rate continued to be registered well beyond 1945 in Ceylon.

Minor septic diseases, which included inflammation of lymphatic glands and lymphatic vessels, suppuration of lymphatic glands and lymphatic vessels, boils, carbuncles, ulcers, whitlows, inflammation of

areolar tissues and onychia, had incidence rates per 1,000 strength of 71.7 in 1942, 44.1 in 1943, 21.8 in 1944 and 24.5 in 1945 (Table 1). A fall of 39 per cent. was registered in the incidence of these diseases in 1943 and of another 50 per cent. in 1944. This rate in 1944 was 70 per cent. lower than the corresponding rate in 1942. A rise of 14 per cent. over the 1944 rate was, however, registered in 1945. For lack of relevant figures of admissions for each of the diseases included under minor septic diseases, it is not possible to assess their comparative values in the total. Basing the remarks about them on general medical statistical experience, it may be stated that a large share in the total rate of minor septic diseases might have been due to minor injuries and infection of areolar tissues.

On the basis of average incidence of the four years, it is noted that dysentery, diarrhoea, eye diseases, common cold, scabies and dengue were the other diseases which produced high rates of morbidity among the VCOs and IORs in Ceylon. They will be taken up in that order.

The average incidence of dysentery, from year to year, varied between 18.8 in 1945 and 24.8 in 1944. The rates during 1942 and 1943 were 19.0 and 22.5 per 1,000 respectively (Table 1). These rates do not show as much variation as those for other diseases during these years. A valuable comparison is afforded by certain useful statistics deducible from the following figures. It is assumed in this comparison that the samples of VCOs and IORs in the four years were large enough and were drawn from the same population.

The values of mean rate, standard deviation, coefficient of variation and range of the rates¹ for dysentery, malaria, venereal diseases and minor septic diseases 1942-45

Diseases	Mean rate	Standard Deviation of the rate (SD)	Coefficient of variation (CV)	Range of the Rate (R)
Dysentery	21.3	2.9	13.6	6.01
Malaria	150.9	59.7	39.6	130.1
Venereal Diseases ..	42.0	4.1	9.8	9.8
Minor Septic Diseases ..	40.5	23.11	57.4	49.9

$$1. \text{ Standard Deviation} = \sqrt{\frac{\text{Sum of squares of deviation from mean}}{\text{Total number of observations}}}$$

$$\text{CV} = \frac{\text{SD}}{\text{Mean}} \times 100$$

$$\text{R} = \text{Maximum minus minimum reading.}$$

Most consistent record of the incidence rates, during the four years, has been shown by venereal diseases which has a mean rate of

42 per 1,000 with a standard deviation equal to 4.1. It will also be seen that its Mean \pm twice the standard deviation contained all the four rates on which they are based. Its coefficient of variation is the lowest of the four diseases, at 9.8. These facts point out statistically that there was not much decrease or increase in the incidence of venereal disease during these years. The measures to check this disease did not succeed in lowering the rates sufficiently. The figures for minor septic diseases tell the reverse story followed closely by malaria. In respect of dysentery the comparatively larger coefficient of variation indicates large fluctuations in the rates from year to year. When these rates are put to test on the basis of the standard error of the difference between two proportions, they indicate non-significant falls from year to year, as will be seen from the figures given below:—

Significance of dysentery rates 1942-45

Year	Difference in rates per cent.	Standard error	Remarks
1942 } 1943 }	0.4	2.0	Not significant
1943 } 1944 }	0.2	2.2	Not significant
1944 } 1945 }	0.6	2.1	Not significant

*Monthly incidence (rate per 1,000 strength) of dysentery among VCOs and IORs
1942-45*

Month	1942	1943	1944	1945
January	1.1	0.9	0.9	1.4
February	2.8	0.4	1.0	1.6
March	4.7	0.5	1.1	1.7
April	4.4	0.5	1.4	3.1
May	2.2	1.0	1.1	1.7
June	1.7	1.6	1.7	2.1
July	0.6	1.0	4.5	1.1
August	1.3	2.8	3.2	1.0
September	0.7	2.7	2.3	0.7
October	1.1	6.8	4.2	1.0
November	1.2	4.6	2.4*	2.2
December	1.5	1.3	2.0	1.3

*Estimated.

There is absolutely no trend traceable in these figures unlike a clear trend in the annual rates. The highest monthly rate of 6·8 per 1,000 occurred in October 1943, whereas the lowest of 0·6 per 1,000 in July 1942. Again, the first few months of 1942 registered the higher rates than those in the latter months of the year, whereas the tendency in 1943 and 1944 was just the opposite. One conclusion, which can clearly be read from these figures, is that the prevalence of dysentery in 1945 was on a very much subdued scale as against its rates in other years. This perhaps was the result of the efforts made in SEAC at that time to fight it. The high monthly rates of 3·1, 2·2 and 2·1 per 1,000 ever to occur in 1945 were registered during the months of April, November and June respectively. During May a rate of 1·7 per 1,000 intervened.

Like venereal diseases, dysentery was also responsible for an increasing percentage share among all diseases, from year to year. It was responsible for 2·2 per cent. of disease morbidity in 1942, 3·2 in 1943, 4·0 in 1944 and about 4·1 in 1945 (Table 2). This increasing rate should be read in conjunction with the explanation advanced above on a similar state of affairs in the case of venereal diseases. These rates by themselves cannot be taken as indicating an advancing morbidity of dysentery.

Experience of Indian troops (VCOs and IORs) was of the greatest significance in respect of dengue. A table is appended below which gives a comparative study of the incidence of dengue in India, Burma and Ceylon.

Incidence of dengue among VCOs and IORs in India, Burma and Ceylon.
Rate per 1,000

Countries			1942	1943	1944	1945
Ceylon	..	..	16·8	10·6	15·8	3·8
India	..	..	2·1	1·4	1·3	0·5
Burma	..	..	2·5	0·4	0·4	0·9

This eight fold higher rate in Ceylon (it was 12 times in 1944) over the rate in India, each year, was due to special conditions prevalent in Ceylon. Dengue was reported to be almost endemic throughout the coastal regions of Ceylon where these troops encamped. Dengue rates for other troops (e.g. British, Ceylonese and African) in Ceylon also tell the same story. It seems to have spread among the British troops in an epidemic form particularly in August 1944.⁷ Among Indian troops dengue was responsible for about 2 per cent. of the morbidity caused by diseases upto 1944. In 1945, as shown on next page, this share fell down to lower than 1 per cent.

It seems that August, September and October, each year, were the months of heaviest incidence from this disease. The highest rate, of the period tabulated above, was 2·7 per 1,000 in October 1944. It must, however, be seen that the highest rate (1·6 per 1,000) in the

⁷ See page 78.

The rates of monthly incidence of dengue (rate per 1,000) among VCOs and IORs—1942-45

Month	1942	1943	1944	1945
January	0.1	1.0	0.3	0.7
February	0.3	0.9	0.4	0.4
March	0.3	1.2	1.0	1.6
April .. ..	..	1.1	2.2	0.3
May	1.4	0.8	1.1	0.2
June	1.2	0.7	0.8	0.1
July	1.4	0.4	1.0	..
August	2.5	1.7	1.7	0.3
September	2.4	1.7	1.8	0.1
October	1.6	0.3	2.7	..
November	1.8	0.3	1.2*	0.1
December	0.8	1.0	2.5	0.3

*Estimated.

year 1945 was in March of that year. Except for the month of March, the level of incidence of dengue in 1945 was comparatively on a very much reduced scale. The annual rate for 1945 in Ceylon was the lowest of all the years there. Amongst VCOs and IORs it was, however, higher than the rate for these troops either in India or in Burma in any of the years from 1942 to 1945.

Cerebrospinal fever, diphtheria and enteric group of fevers were practically non-existent in the Indian troops in Ceylon. A few solitary cases each year, or off and on, did occur of dermal leishmaniasis, poliomyelitis, small pox, typhus, beri-beri, scurvy, rheumatic fever, heat stroke and heat exhaustion. None of these causes of admissions were, however, of a serious nature as far as the Indian troops were concerned.

Another disease in which the Indian morbidity in Ceylon differed extraordinarily from its corresponding rates in India was in respect of tuberculosis. Its rates for 1942 and 1943, the latter in particular, were very much higher than the rates in India at that time. The incidence of 10 per 1,000 was obviously high. There were 229 cases of tuberculosis in 1943 forming 1.4 per cent. of admissions due to diseases.

Hepatitis caused 102 admissions to hospitals in 1942, 83 in 1943, 96 in 1944 and 84 in 1945. The relevant rate per 1,000 strength was always lower than 7. It has not been possible to evaluate separately cases of infective hepatitis from these totals, as no provision was made for it in the prescribed returns till 1944. It was only towards the end of 1944 that infective hepatitis, as such, was specified as a disease in AFA 31-B. It is also known that among the 84 cases reported as due to hepatitis in 1945 only 6 were due to infective hepatitis.

Mumps caused 32 admissions to hospitals in 1942, 18 in 1943, 24 in 1944 and 38 in 1945. The rates per 1,000 VCOs and IORs in the first and the last years of the period under consideration were 2.1 and 2.6 respectively.

Sandfly fever produced some 19 cases in 1942, 26 in 1943 and 27 in 1944. No cases were reported in 1945.

DISEASES OF THE DIGESTIVE SYSTEM

The decline in the annual rates of incidence of diarrhoea was more marked than that in dysentery. The relevant rates were 31.4 in 1942, 22.1 in 1943, 14.0 in 1944 and 11.4 per 1,000 in 1945 (Table 1). The last rate was about a 1/3rd of the first, which indicates a steep decline and a very satisfactory achievement. Diarrhoea was responsible for 3.6 per cent. of total sickness in 1942, 3.1 in 1943, 2.3 in 1944 and 2.4 in 1945 (Table 2).

Monthly incidence (rate per 1,000) of diarrhoea among VCOs and IORs 1942-45.

Month	1942	1943	1944	1945
January	1.0	0.8	0.4	1.4
February	0.7	1.9	0.4	1.0
March	3.9	1.7	0.5	1.6
April	2.9	1.9	0.2	2.3
May	3.4	1.7	0.4	1.7
June	4.4	3.0	1.3	0.4
July	3.6	1.8	1.6	0.6
August	3.1	2.7	1.9	1.7
September	3.3	3.0	2.1	0.4
October	2.7	1.8	3.4	0.7
November	1.4	1.5	1.6*	0.6
December	1.5	0.6	2.0	0.8

*Estimated.

It may be seen from the figures given above that the peak in every year was generally reached between April-September; with the months preceding April and following September registering lower morbidity rates. The trend between one month of a year and that of the other years was mostly of this pattern. A high rate in a month of 1942 followed by two corresponding months of declining rates in 1943 and 1944 but with an increasing rate in that of 1945. As in the case of dysentery, a lower level of incidence than in other years was recorded for diarrhoea also during most of the year 1945. It may be noticed that the rates from December 1943 to June 1944 were very low indeed and were lower even than the corresponding rates during December 1944-June 1945. It may be added that this was the time when SEAC was taking shape (the rate for VCOs and IORs in India was 26 per 1,000 in 1943, 21 in 1944 and 17 in 1945). The lowest monthly rate (0.2 per 1,000) ever, during this period, was recorded in April 1944 and not in 1945, when special steps were taken to lower its intensity. This should not be taken to mean that such rates in 1945 were high. On the contrary, they were fairly low, the lowest being 0.4 per 1,000 each in June

and September of that year, but the lowest on record during this period was not registered in 1945. The highest rate was 4.4 per 1,000 recorded in June 1942. Some idea of its magnitude could be had from the fact that if this rate had continued month by month, it would have meant an annual rate of about 53 per 1,000, a very high figure indeed. It may also be mentioned here that diarrhoea is the only disease specifically mentioned under the general heading "digestive diseases". No other disease of this category was separately entered in the relevant 'returns' which were rendered by hospitals. The rates of incidence for digestive diseases in Ceylon were 81.8 per 1,000 in 1942, 50.4 in 1943, 45.5 in 1944 and 39.7 in 1945. From the corresponding rates of diarrhoea given above, it may be seen that diarrhoea alone accounted for 38 per cent. in 1942, 44 in 1943, 31 in 1944 and slightly less than 30 in 1945 of all digestive diseases.

DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS

Information for the diseases of ear, nose and throat is available for 1944 and 1945 only. Its rate in 1944 was 25 but increased to 28 per 1,000 in 1945. These diseases might have been responsible for almost similar incidence rates in the preceding two years. Noting that the corresponding rates for VCOs and IORs in India were 15 in 1942, 19 in 1943, 18 in 1944 and only 10 in 1945 per 1,000, it appears that service in Ceylon seems to have accentuated the incidence in respect of these diseases. The relative rates from these diseases in Ceylon were also of a high magnitude viz., 4.1 per cent. in 1944 and 6.0 in 1945.

Diseases of "nervous system and sense organs" (including among others ear, nose, throat and eye diseases other than trachoma) accounted each year for an increasing percentage of all causes.

Eye diseases including trachoma had rates of 22.9, 16.2, 12.7 and 18.6 per 1,000 in the four years under consideration. The fall in the incidence of these diseases from 1942 to 1943 was about 30 per cent. and in 1944 about 44.7 per cent. Why their incidence increased from 1944 to 1945 is difficult to explain from the available information. The fall from 1942 to 1944 followed by a sudden rise in 1945 could hardly be due to the factors peculiar to Ceylon.

DISEASES OF THE SKIN AND CELLULAR TISSUE

Skin diseases were said to flourish in Ceylon throughout the year and scabies was one of them. Its rates in India, for VCOs and IORs were 16 in 1942, 28 in 1943, 23 in 1944 and 9 per 1,000 in 1945. The average rate for the four years registered in Ceylon was slightly lower than the rate in India. The four yearly rates in Ceylon were 15.9 in 1942, 16 in 1943, 10 in 1944 and 16 per 1,000 in 1945. It cannot be said that these figures are fully comparable as factors such as composition of troops at both the places, natural severity of the disease, facilities for bathing and personal hygiene measures etc., are not possible to evaluate separately. In addition to scabies, which has been classified here as an infective and parasitic disease, skin diseases had also caused quite

heavy rates of morbidity. In the two years 1944 and 1945, for which information is available on skin diseases (Table 1) the relevant rates were 20.9 and 21.6 per 1,000 respectively.

MENTAL, PSYCHONEUROTIC AND PERSONALITY DISORDERS

The incidence of mental diseases continued to increase from year to year among the VCOs and IORs. The relevant figures were 2.6 in 1942, 2.9 in 1943, 4.6 in 1944 and 5.9 in 1945 per 1,000 (Table 1).

DISEASES OF THE RESPIRATORY SYSTEM

Respiratory diseases were responsible for 4.9 per cent. of all sickness in 1942; for 2.7 in 1943, 8.7 in 1944 and 8.8 in 1945 (Table 3). As has been stated elsewhere in this chapter, this does not necessarily indicate an increasing incidence of this disease from year to year. In the existing circumstances the latter fact can only roughly be based on its rates per 1,000 strength each year.

Some figures in respect of respiratory diseases are appended below, from which certain important observations could be made:—

Incidence of respiratory diseases among VCOs and IORs (rate per 1,000).

Diseases	1942	1943	1944	1945
Common cold	17.8	9.0	26.0	8.4
Pharyngitis	14.6	6.9	NA.	N.A
Tonsillitis	5.3	4.1	4.6	5.0
Pneumonia .. ..	..	..	..	3.3
Influenza	1.9	0.5	0.2	0.4
Other respiratory diseases ..	NA.	NA.	27.0	27.6

The point of special importance in these figures is the comparatively high rates recorded in Ceylon for pharyngitis and common cold and for pneumonia during 1944 and 1945 when the corresponding rates in India were less than 0.5 per 1,000.

It seems that the common cold is one of those ailments against which Indian troops always registered high incidence. In Ceylon the respective rates for the four years were 17.8, 9.0, 26.0 and 8.4. The rates for 1942 and 1944 were comparatively higher, particularly the one relating to the year 1944. It must, however, be remembered that the corresponding rates from this disease in India were also not low. They were 14.5 per 1,000 in 1942, 34.6 in 1943, 33.0 in 1944 and 18.0 in 1945. The comparative importance of this common ailment should be seen in the fact that it was responsible for 2 per cent of hospital admissions (due to diseases) in 1942, 1.3 in 1943, 4.2 in 1944 and 1.8 in 1945 (Table 2). The figures of the duration of stay in hospital are not available and it is, therefore, not possible to assess the comparative severity of the diseases in causing non-effectiveness among troops.

DISEASES OF THE BLOOD AND BLOOD FORMING ORGANS

In 1945, 56 cases, with a rate of 3.9 per 1,000, were reported of "nutritional and other anaemia".

SYMPTOMS, SENILITY AND ILL-DEFINED CONDITIONS

The large number of cases reported under NYD fever during 1944 and 1945 might have been those cases which were difficult of diagnosis in the first instance. Some of them must have been properly diagnosed and treated. These large number of cases of NYD fever, however, did cause underreporting in respect of those diseases to which these cases were ultimately found to belong.

ALL OTHER DISEASES

One fact which can be read more definitely into the figures of relative casualty rates due to "all other diseases" is that in 1944 and 1945 an improvement in the system of diagnosis had been effected. Of all the admissions to hospitals in 1942 and 1943, these undefined causes were responsible for 36.3 and 35.7 per cent. respectively. These percentages in 1944 and 1945 were 14.3 and 17.8 respectively indicating that comparatively more cases were definitely diagnosed in these two years than formerly. Some difference in these percentages was also caused by the presence of "NYD fever" as a separate cause during 1944 and 1945, which was absent in the returns relating to 1942 and 1943. If, however, cases of NYD fever in 1944 and 1945 were also included, as earlier, in the category "all other diseases", the relative casualty rates for the latter would become 24.3 and 24.7 per cent. respectively, which are definitely very much lower than the corresponding rates in 1942 and 1943. Another distant theoretical cause for the reduction in these percentages could be due to a change in the recording of diagnosis i.e. more diseases noted on the returns were recorded during 1944 and 1945 than during 1942 and 1943.

ACCIDENTS, POISONINGS AND VIOLENCE

There were very few cases of injuries due to enemy action in Ceylon. As against this, a very large number of cases of local injuries (self-inflicted and otherwise) due to non-enemy action were reported each year. Their rates (per 1,000) were fairly high and were 65.1 in 1942, 47.2 in 1943, 51.6 in 1944 and 42.9 in 1945.

War wounds stood always at a relative rate of lower than 0.1 per cent. in all causes.

The figures of average daily sick and of deaths due to specific causes have not been made available. These are available jointly for all diseases as distinct from war wounds. In the latter category, admissions or deaths were practically negligible in Ceylon. As has already been stated elsewhere, figures of duration of stay in different medical units, for diseases, is also not available. Evaluation of case

morbidity and comparative non-effectiveness rendered by various causes thus becomes difficult.

DEATHS

Total deaths from all causes were 28 in 1942, 54 in 1943, 33 in 1944 and 22 in 1945, giving rates of 1.9, 2.4, 1.9 and 1.5 per 1,000 respectively (Table 1). These figures provide an encouraging comparison against corresponding death rates for VCOs and IORs in India Command. The rates in India Command during the four years were 4.99 in 1942, 4.12 in 1943, 3.30 in 1944 and 2.62 in 1945.

AVERAGE DAILY SICK

Number of average daily sick in the year 1942 was 620 VCOs and IORs; 921 in 1943, 444 in 1944 and 396 in 1945. These figures have been arrived at from corresponding monthly averages given in the returns by multiplying monthly average number by the number of days in that month; adding the products and dividing the result by the number of days in the year. These figures show the daily load on hospital services from year to year. It increased to $1\frac{1}{2}$ times in respect of VCOs and IORs in 1943 of what it was in 1942, but started falling thereafter. It was 72 per cent. of 1942 in 1944 and only 64 per cent in 1945. These figures represent only an average load and not actual load on a particular day in any of these years. An arithmetic average may be a product of very high and very low figures or of even figures with slight variations from the mean. It is not possible with available material to give precisely daily distribution of all the sickness figures in Ceylon. Some idea can, however, be formed from the daily average numbers of sick in each month given below:—

Average daily sick of VCOs and IROs in Ceylon in each month of 1942-45.

Month	1942	1943	1944	1945
January	161.4	1,080.1	605.8	478.6
February	155.6	953.1	511.5	357.6
March	183.3	1,039.2	270.1	420.2
April	238.8	1,233.9	192.0	444.3
May	373.4	1,290.2	238.1	423.8
June	466.1	1,379.8	337.3	440.9
July	440.4	925.0	560.2	443.6
August	726.0	702.6	450.9	438.9
September	1,064.4	593.1	519.5	411.7
October	1,285.4	582.6	492.8	359.9
November	1,154.5	636.2	462.2	250.4
December	1,130.7	652.3	494.7	271.7

These figures show that there were wide fluctuations in monthly averages during 1942 and 1943 but this was not the case in 1944 and 1945. They also show, incidentally, that the period from September 1942 to July 1943 was apparently a bad period as regards the health of

VCOs and IORs in Ceylon. During this interval a daily average of more than 1,200 sick was reached three times, viz. during October 1942 and April, May and June of 1943. June 1943 was exceptionally bad.

In Ceylon the figure of troops constantly sick every day varied greatly between one month and another, from year to year, as will be seen in the following table:—

Rate per 1,000 of the number of VCOs and IORs constantly sick, each day

Month			1942	1943	1944	1945
January	..	..	2.2	4.4	3.0	3.8
February	..	..	2.1	3.6	2.6	3.1
March	..	..	2.5	4.3	1.4	3.4
April	..	..	2.6	5.3	1.2	2.9
May	..	..	3.8	4.5	1.4	2.6
June	..	..	4.1	5.1	2.0	2.7
July	..	..	2.4	3.4	3.6	2.7
August	..	..	3.6	4.2	2.8	2.6
September	..	..	5.4	4.0	3.2	2.5
October	..	..	6.0	2.6	2.9	2.3
November	..	..	4.6	3.1	3.0	2.0
December	..	..	4.7	3.1	3.6	2.8

The highest percentage of daily sick was observed in October 1942, at 6 per cent. of the troops, whereas the lowest of 1.2 per cent. in April 1944.

The daily percentages of average admissions, each year, were 4.1 in 1942, 4.0 in 1943, 5.5 in 1944 and 2.8 in 1945. These figures indicate that hospital accommodation was daily provided for 2.8 to 5.5 per cent. of troops (VCOs and IORs) during the four years under consideration.

CONCLUSION

Climatic and other conditions in Ceylon made malaria, minor septic diseases, dysentery, diarrhoea, skin diseases, dengue and scabies some of the major causes of sickness among the VCOs and IORs. Dengue was prevalent in epidemic form in coastal regions of Ceylon and affected the troops, including Indian troops, badly. Other diseases that had high incidence rates were venereal diseases, eye diseases, common cold and respiratory diseases. Among the last mentioned group of diseases, pharyngitis and tonsillitis were particularly frequent.

Among the diseases registering comparatively low incidence but having importance from the point of view of army health administration, hepatitis (mostly infective) was a cause of a large number of admissions, each year. A few cases of cerebrospinal fever, diphtheria, enteric group of fever, poliomyelitis, sandfly fever, small-pox and heat effects were also admitted to hospitals.

TABLE I

*Admissions to Hospitals—Annual rates per 1,000 strength: VCOs and IORs:
SEAC (Ceylon Army Command).*

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.53	0.17	..	0.35
Dengue	16.79	10.61	15.82	3.77
Diphtheria	0.06	..	0.12	0.21
Dysentery	18.97	22.52	24.79	18.78
Enteric group of fevers	0.13	0.08	0.06	..
Infective-hepatitis (Jaundice) ..	6.77	3.61	5.63	5.86
Malaria	194.66	188.96	155.54	64.56
Major septic diseases ..	..	..	0.76	0.07
Minor septic diseases ..	71.66	44.13	21.80	24.50
Mumps	2.12	0.78	1.41	2.65
Oriental sore	0.53	0.22	0.53	0.07
Poliomyelitis .. ..	..	0.13	0.35	..
Sandfly fever	1.26	1.13	1.58	..
Scabies	15.86	15.96	10.14	16.47
Smallpox	0.06	0.13	0.06	0.14
Tuberculosis	3.52	9.96	1.70	1.19
Trachoma	2.12	1.65	0.88	0.77
Typhus fever	0.26	0.26	0.18	0.14
Veneral diseases ..	46.64	44.48	39.85	36.85
Total	381.97	344.79	281.19	176.37
(2) <i>Allergic, endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri .. ..	..	..	0.06	..
Scurvy .. ..	..	..	1.00	..
Total .. ..	..	..	1.05	..
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	3.91
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	2.65	2.87	4.57	5.86
(5) <i>Diseases of the Nervous System and sense organs</i>				
ENT diseases ..	NA.	NA.	25.02	28.06
Eye diseases other than Trachoma	20.77	14.52	11.78	17.87
Total	20.77	14.52	36.80	45.93
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0.13	0.22	0.41	0.28
Other circulatory diseases ..	..	..	4.04	0.49
Total	0.13	0.22	4.45	0.77

TABLE 1—(Contd.)

Diseases	1942	1943	1944	1945
(7) <i>Diseases of the Respiratory system</i>				
Common cold ..	17.78	8.96	25.96	8.38
Tonsillitis ..	5.31	4.13	4.57	5.02
Pharyngitis ..	14.60	6.87	..	..
Influenza ..	1.92	0.48	0.18	0.35
Pneumonia ..	..	..	..	3.28
Other respiratory diseases	NA.	NA.	27.02	27.64
Total ..	39.61	20.44	57.72	44.67
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea ..	31.38	22.13	14.01	11.38
Other digestive diseases	50.42	28.22	31.53	28.34
Total ..	81.81	50.35	45.54	39.71
(9) <i>Diseases of the skin and Cellular tissue</i>				
Skin diseases	NA.	NA.	20.92	21.64
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever ..	NA.	NA.	66.58	34.76
PUO ..	0.99	2.09	0.06	..
Total ..	0.99	2.09	66.63	34.76
(11) <i>All other diseases</i> ..	339.11	268.05	94.94	90.04
(12) <i>All diseases</i> ..	867.04	703.33	613.84	463.67
(13) <i>Accidents, poisoning and violence (non-battle injuries)</i>				
Burns and scalds ..	..	..	..	1.19
Other local injuries ..	65.09	47.22	51.63	41.74
Total ..	65.09	47.22	51.63	42.93
(14) <i>Accidents, poisoning and violence (battle injuries)</i>				
Bomb wounds ..	0.07	..	..	..
Gun shot wounds ..	0.60	0.78	0.35	0.07
Shell wounds ..	..	0.04	..	..
Total ..	0.67	0.83	0.35	0.07
(15) <i>All cases</i> ..	932.79	751.38	665.82	506.66
(16) <i>Average daily sick</i> ..	4.1	4.0	5.5	2.8
(17) <i>Deaths</i> ..	1.86	2.35	1.93	1.54

TABLE 2

Relative morbidity rates: VCOs and IORs: SEAC (Ceylon Army Command).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.06	0.02	..	0.07
Dengue ..	1.94	1.51	2.58	0.81
Diphtheria ..	0.01	..	0.02	0.04
Dysentery ..	2.19	3.20	4.04	4.05
Enteric group of fevers ..	0.01	0.01	0.01	..
Infective-hepatitis (Jaundice) ..	0.78	0.51	0.92	1.26
Malaria ..	22.45	26.87	25.34	13.92
Major septic diseases ..	..	..	0.12	0.01
Minor septic diseases ..	8.26	6.27	3.55	5.28
Mumps ..	0.24	0.11	0.23	0.57
Oriental sore ..	0.06	0.03	0.09	0.01
Poliomyelitis ..	..	0.02	0.06	..
Sandfly fever ..	0.14	0.16	0.26	..
Scabies ..	1.83	2.27	1.65	3.55
Smallpox ..	0.01	0.02	0.01	0.03
Tuberculosis ..	0.40	1.42	0.28	0.26
Trachoma ..	0.24	0.28	0.14	0.17
Typhus fever ..	0.03	0.04	0.03	0.03
Venereal diseases ..	5.38	6.32	6.49	7.95
Total ..	44.05	49.03	45.81	38.04
(2) <i>Allergic, Endocrine system and Nutritional diseases</i>				
Beri beri ..	..	..	0.01	..
Scurvy ..	..	..	0.16	..
Total ..	..	..	0.17	..
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia ..	..	..	..	0.84
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	0.31	0.41	0.74	1.26
(5) <i>Diseases of the Nervous System and sense organs</i>				
ENT diseases ..	..	..	4.08	6.05
Eye diseases other than trachoma ..	2.39	2.06	1.92	3.85
Total ..	2.39	2.06	6.00	9.90
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0.01	0.03	0.07	0.06
Other circulatory diseases ..	..	..	0.66	0.10
Total ..	0.01	0.03	0.73	0.17

TABLE 2—(Contd.)

Diseases		1942	1943	1944	1945
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	2.05	1.27	4.23	1.81
	Tonsillitis ..	0.61	0.59	0.74	1.08
	Pharyngitis ..	1.68	0.98	..	..
	Influenza ..	0.22	0.07	0.03	0.07
	Pneumonia ..	..	..	..	0.71
	Other respiratory diseases ..	..	..	4.40	5.96
	Total ..	4.57	2.90	9.40	9.64
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	3.62	3.15	2.28	2.45
	Other digestive diseases ..	5.82	4.01	5.14	6.11
	Total ..	9.43	7.16	7.42	8.56
(9)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases ..	..	..	3.41	4.67
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	10.85	7.50
	PUO ..	0.11	0.30	0.01	..
	Total ..	0.11	0.30	10.86	7.50
(11)	<i>All other diseases</i> ..	39.12	38.12	15.47	19.42
(12)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 3

Relative casualty rates: VCOs and IORs: SEAC (Ceylon Army Command).

Specialist groups		1942	1943	1944	1945
(1)	Infective and parasitic diseases ..	40.24	45.89	42.23	34.81
(2)	Allergic, endocrine system, metabolic and nutritional diseases ..	..	..	0.16	..
(3)	Diseases of the blood and blood forming organs ..	..	..	..	0.77
(4)	Mental, psychoneurotic and personality disorders ..	0.28	0.38	0.69	1.16
(5)	Diseases of the nervous system and sense organs	2.23	1.93	5.53	9.06
(6)	Diseases of the circulatory system ..	0.01	0.03	0.67	0.15
(7)	Diseases of the respiratory system ..	4.95	2.72	8.67	8.81

TABLE 3—(Contd.)

Specialist groups		1942	1943	1944	1945
(8)	Diseases of the digestive system ..	8.77	6.70	6.84	7.84
(9)	Diseases of the skin and cellular tissue ..	..	..	3.14	4.27
(10)	Symptoms, senility and ill-defined conditions ..	0.11	0.27	10.01	6.86
(11)	All other diseases ..	36.35	35.69	14.26	17.77
(12)	All diseases ..	92.95	93.61	92.19	91.52
(13)	Non-battle injuries ..	6.98	6.28	7.76	8.47
(14)	Battle injuries ..	0.07	0.11	0.05	0.01
(15)	All cases ..	100.00	100.00	100.00	100.00

Section II

KING'S COMMISSIONED INDIAN OFFICERS AND INDIAN COMMISSIONED OFFICERS

Not more than 150 IKCOs and ICOs were posted in Ceylon. This number obviously could not produce any morbidity history which could be relied upon as representing a sample of these categories of troops. The available figures are reproduced on next page. No figures are available for 1945 for IKCOs and ICOs.

It will be seen that every year malaria was responsible for largest number of admissions to hospitals.

Five admissions were from dengue in 1942, and one each in the two years 1943 and 1944.

Dysentery and digestive diseases (which include diarrhoea) also produced heavy morbidity during these years among Indian officers.

Another important cause of morbidity was injuries due to non-enemy action particularly in 1942 and 1944.

No deaths were reported among these officers during 1942-44.

Admissions to Hospitals—IKCOs and ICOs, Ceylon—1942-44.

	1942			1943			1944		
	Admission	Rate per 1,000	Relative rate per cent.	Admission	Rate per 1,000	Relative rate per cent.	Admission	Rate per 1,000	Relative rate per cent.
Dengue ..	5	51.6	13.2	1	11.1	3.3	1	6.8	2.8
Dysentery ..	4	41.2	10.5	3	33.3	10.0	1	6.8	2.8
Malaria ..	7	72.2	18.4	6	66.7	20.0	6	40.5	16.7
Minor septic diseases ..	2	20.6	5.3	1	11.1	3.3	3	20.3	8.3
Tuberculosis ..	..	..	..	1	11.1	3.3	..	..	..
Veneral diseases ..	..	..	..	2	22.2	6.7	..	..	..
Mental diseases ..	..	..	..	2	22.2	6.7	..	..	..
ENT diseases ..	..	..	..	..	..	..	3	20.3	8.3
Circulatory diseases ..	..	..	..	..	..	..	1	6.8	2.8
Tonsillitis ..	2	20.6	5.3	..	..	..	..	..	..
Pharyngitis ..	1	10.3	2.6	..	..	..	..	..	..
Influenza ..	1	10.3	2.6	..	..	..	..	..	..
Other respiratory diseases ..	..	..	..	..	..	..	2	13.5	5.6
Diarrhoea ..	..	..	..	1	11.1	3.3	..	..	..
Other digestive diseases ..	1	10.3	2.6	4	44.4	13.3	4	27.0	11.1
Skin diseases ..	..	..	..	..	..	..	2	13.5	5.6
NYD fever ..	..	..	..	..	..	..	1	6.8	2.8
All other diseases ..	15	154.6	39.5	12	133.3	40.0	12	81.1	33.3
All diseases ..	38	391.8	100.0	33	366.7	100.0	36	243.2	100.0
Injuries, non-enemy action ..	4	41.2	..	1	11.1	..	5	33.8	..
All cases ..	42	433.0	..	34	377.8	..	41	377.0	..
Deaths ..	..	..	..	..	..	..	..	..	..
Average daily sick ..	1.38	14.22	..	0.77	8.55	..	1.38	9.32	..

Section IV

I.M.N.S.

At no time during the four years 1942-45, were there more than 84 Indian nurses posted in Ceylon. This figure also was reached only once in April 1943, otherwise their strength was always very much lower. Accordingly their sickness history, as given on the next page, is also very brief, like that of IKCOs and ICOs.

No deaths occurred among the Indian nurses.

There were 5, 26, 13 and 6 admissions only from among the members of the IMNS during 1942, 1943, 1944 and 1945 respectively. The only point worth noting in these figures is the comparative rarity of malaria and dysentery admissions and a larger incidence due to minor septic diseases, particularly in 1943.

Admissions to Hospitals—amongst IMNS—1942-45.

	1942			1943			1944			1945		
	Admission	Rate per 1,000	Relative rate per cent	Admission	Rate per 1,000	Relative rate per cent	Admission	Rate per 1,000	Relative rate per cent	Admission	Rate per 1,000	Relative rate per cent
Diseases and injuries												
Common cold	..	..	..	1	11.9	4.0	..	29.4	7.7	..	..	..
Dengue ..	..	..	..	..	..	..	1	29.4	7.7	..	..	..
Dysentery	..	..	..	2	23.8	8.0	1	29.4	7.7	..	..	..
Malaria ..	..	..	..	2	23.8	8.0	1	29.4	7.7	..	..	..
Minor septic diseases ..	2	100.0	40.0	6	71.4	24.0	..	..	..	1	55.6	16.7
ENT diseases	..	..	..	..	..	..	1	29.4	7.7	..	..	..
Eye diseases other than trachoma	..	..	..	1	11.9	4.0	..	..	..	..	..	..
Respiratory diseases	..	..	..	..	..	..	1	29.4	7.7	..	..	..
Diarrhoea	..	..	..	1	11.9	4.0	..	..	..	..	..	..
Other digestive diseases	1	50.0	20.0	2	23.8	8.0	1	29.4	7.7	..	..	83.3
All other diseases	2	100.0	40.0	10	119.1	40.0	4	117.6	30.8	5	277.8	100.0
All diseases	5	250.0	100.0	25	297.6	100.0	13	382.4	100.0	6	333.3	100.0
Injuries non-enemy action	..	..	..	1	11.9	..	..	..	..	..	..	..
All cases	5	250.0	..	26	309.5	..	13	382.4	..	6	333.3	..
Average daily sick	0.34	17.00	..	1.11	13.21	..	0.61	17.94	..	0.95	52.77	..

Section V

NON-COMBATANTS (ENROLLED)

Admissions to hospitals of NCs(E), during 1942-45, are given in Tables 4, 5 and 6. It may be mentioned that the annual figures are not strictly comparable after 1943, because hospital admissions for Indian States Civilian Labour Units have also been included in those for NCs(E) after August 1943. Their strength figures have also been shown in the basic monthly returns jointly. For 1944 and 1945, therefore, NCs(E) and Indian Labour units are shown together. These units were required in Ceylon by the Air Force and the Navy. Local labour was not available as a large majority of the available hands there had been employed in the active campaign to make Ceylon grow maximum of foodstuffs.⁸ Since no auxiliary, pioneer or labour battalion could be made available to Ceylon, it was suggested, and later accepted, that an adequate force of organised labour units in the form of Indian States Civilian Labour Units, similar to those employed at that time on military projects in North-East India, might be sent.⁹ These units were commanded by military officers, rationed by the army and were under complete military control. Emigration ban on them was lifted for the duration of their employment in Ceylon after which they were to be repatriated to India by the military authorities. They were largely recruited in Travancore and Cochin States. Each unit had a labour strength of 800 and was provided with a medical officer, a dresser and two nursing orderlies. A unit sick bay to accommodate 20 cases was authorised for each unit which was equipped and supervised by the local army medical authorities. Serious cases were treated in army hospitals. In addition their rates of pay, hours of work, rations, clothing, transport, discipline, accommodation and compensation for injuries or death were regulated more or less in the same way as for NCs(E). It is, therefore, not likely that the inclusion of hospital admissions of such units would vitiate the results in respect of NCs(E) to any great extent. Besides, it was only a limited number of cases of these units which were treated in army hospitals and such cases might have been an underestimate of their total sickness. These admissions of labour units have been, therefore, treated here as conforming to the general sickness level of the NCs(E).

The rates of absolute incidence of all hospital admissions for these troops were 816.2 per 1,000 in 1942, 691.8 in 1943, 387.6 in 1944 and 222.4 in 1945 (Table 4). These rates differ significantly from year to year which means that their differences did not arise merely by chance and must have resulted from conscious effort made to reduce sickness. It may be added that the difference between the rates for 1942 and 1943 does not represent this state of affairs distinctly.

These rates show also that of the every 100 NCs(E) 82 were admitted in the hospital in 1942, 69 in 1943, 34 in 1944 and 22 in 1945. The number of NCs(E) admitted to hospital in 1945 was thus at about 1/4 the rate of 1942.

⁸ C-in-C Ceylon telegram No. 04042/14 of 14-1-43 to Army Headquarters (India).

⁹ Quarter Master General (India) Secret Letter No. 82615/Q. 16, dated 22-1-1943 to Commander-in-Chief, Ceylon.

There were very few injuries due to enemy-action in Ceylon and fewer still among the NCs(E). Only one casualty due to bomb-wound was registered in 1942. Injuries due to non-enemy action which include burns, scalds and other local injuries were, however, responsible for hospital admissions at rates per 1,000 strength of 38 in 1942, 25 in 1943, 27 in 1944 and 14 in 1945 (Table 4).

By leaving injuries out of account, rates per 1,000 of hospital admissions among NCs(E) for diseases were 777 in 1942, 667 in 1943, 361 in 1944 and 209 in 1945. These rates show significant differences only from 1943 onwards. The difference between the rates of 1942 and 1943 is such as could easily have arisen by chance. It may be recalled that in 1944 and 1945 these figures included not only NCs(E) as such but civilian labour units also. The tendency for sickness due to their inclusion must have been to inflate the number of admissions. But significant departures in these rates from 1943 to 1945 emphasise the fact that during these years a big lowering was effected in sickness through conscious effort.

As was the case with VCOs and IORs, the most important single cause of hospital admissions among the NCs(E) was malaria. It accounted for 27 per cent. of admissions due to diseases in 1942, 23 per cent. in 1943, 27 per cent. in 1944 and 29 per cent. in 1945 (see Table 5). These rates show that among diseases malaria admissions did not fall to the same extent as those for all other diseases from year to year. These rates do not, however, show a constantly increasing absolute incidence of this disease. On the contrary, rates per 1,000 strength registered a declining trend throughout. These were 210 in 1942, 156 in 1943, 97 in 1944 and 61 in 1945 (Table 4). According to the medical liaison reports sent from Ceylon to General Headquarters (India) and the monthly incidence figures given in the section dealing with VCOs and IORs, the peak season of malaria in Ceylon every year centred round December. Actually the constant humidity and high temperature, in Ceylon, throughout the year favoured the spread of this disease, with minor seasonal variations. Sporadic outbreaks did occur from time to time due to congestion in camps, whose sites of necessity, were round the coastal belts and in jungle areas. It may be remembered that the northern and eastern areas of Ceylon are hyperendemic in respect of malaria. Troops and labour units were of necessity staying in aerodromes and camps amidst such areas. They were also employed on intensive exercises in these areas. During the last few months of 1942 heavy incidence from this disease was reported. Whenever the exercises were resumed, a fillip was provided to the admission rate. The anti-malaria units in the Trincomalee area appear to have reduced the incidence of malaria in 1943. A steady falling rate was generally recorded up to the end of 1945.

Malaria, as stated above, was responsible, each year, for more than one-fourth of all admissions due to diseases among NCs(E). Admissions due to venereal diseases were also of a very high order. They accounted for 9 per cent. in 1942, 8 per cent. in 1943, 6 per cent. in 1944 and 4.5 per cent. in 1945 of all sick admissions, and were only one-third

of malaria admissions in 1942 and 1943, two-ninth in 1944 and about one-sixth in 1945. The absolute rates of incidence from these diseases were 72 per 1,000 in 1942, 56 in 1943, 21 in 1944 and only 9 in 1945. The fall from 1942 to 1945 was remarkable, as the rate in the latter year was only 1/8 of that in the former. It was reported to the General Headquarters (India) by the medical authorities in Ceylon in 1942 that the high incidence of venereal diseases was due to imported cases, and subsequent infections, from Singapore and Java. Their incidence fell steadily throughout the period under consideration, except for a time in April 1944, when the Indian Labour Units were reported to be the only ones that had recorded undiminished admission rates. Marked drops in such admissions were reported from time to time, due sometimes to change-over in the location of units, sometimes to the change in the mode of treatment and at others to proper hygiene discipline and preventive measures.

Minor septic diseases produced rates per 1,000 strength of 33 in 1942, 28 in 1943, 20 in 1944 and 11 in 1945. Their relative importance among admissions due to diseases was always between 4 to 6 per cent. (Tables 4 and 5). The incidence of these diseases was always lower among the NCs(E) than among the VCOs and IORs.

Incidence of dysentery among NCs(E) was particularly low in 1942 and 1945. The relevant rates were 10.4 per 1,000 in 1942 and 9.8 per 1,000 in 1945. Sharp rises in the admissions due to dysentery were caused during the periods around September of each of 1943 and 1944, with the result that the rate in 1943 increased to 12.8 and that in 1944 to 18.5 per 1,000. It is not possible to evaluate which type of dysentery predominated among the NCs(E). It was generally remarked in the medical liaison reports, issued in 1943 from Ceylon to General Headquarters (India), that the amoebic form usually caused heavier incidence. In June 1944 the same authorities, however, stated that among the East African troops it was bacillary dysentery which predominated. It is not possible, therefore, to indicate the comparative value of various types of dysentery in causing sickness among the NCs(E). Its relative importance was 1.2 per cent. in all diseases before the labour units were combined with NCs(E) in 1944 after which it increased to 5 per cent. A comparison of the absolute rates of incidence due to this disease between VCOs and IORs and NCs(E) shows that the latter suffered at about half the rate of the former, each year except in 1944. During 1944 the rate for NCs(E) was as low as 75 per cent. of that for the VCOs and IORs.

Diarrhoea registered a steep declining incidence in the four years. The rate in 1945 (4.1 per 1,000) was about one-fifth of the rate in 1942 (21.0 per 1,000). Its rate in 1942 was about twice the rate for dysentery in that year. From 1943 it was much lower than the corresponding rates for dysentery. The high rate of 1942 looks exceptional for NCs(E) though it was only 70 per cent. of the diarrhoea rate in 1942 for the VCOs and IORs. After that the rate for NCs(E) was either half or one-third of the rate for VCOs and IORs. These are interesting comparisons because they help to focuss attention on the varying intensity of the bowel diseases (viz. dysentery, diarrhoea and

other digestive diseases) among combatant and non-combatant troops of similar origin.

The sickness rate due to dengue among Indian troops in Ceylon was considerable. It may be added that this disease was of no consequence to these troops either in Burma or in India. This disease existed in epidemic form all round the coastal belt of Ceylon and it was mainly in these areas that forces had to stay. It is, therefore, natural that high incidence in respect of it was reported among all troops located there. Among individual diseases, dengue was next in severity to malaria and venereal diseases in 1942. The incidence rate was 25 per 1,000 in that year and accounted for a little more than 3 per cent. of sick admissions. After 1942, the fall in its incidence was rapid. By 1945 it was reduced to one-twentyfirst of its rate in 1942. It was fourth in a descending order of major diseases during 1943 with a reduced incidence rate of 13 per 1,000. It further fell to a rate of 6 per 1,000 in 1944, but even at its lowest, the rate of incidence in Ceylon for NCs(E) was higher than the corresponding rate for Indian troops in India. The incidence of dengue was higher among the NCs(E) than among the VCOs and IORs during 1942 and 1943, but lower than the latter during 1944 and 1945.

Information about the incidence of skin diseases is available only for 1944 and 1945. It seems that most of the cases of skin diseases were of *ulcers resulting from neglected abrasions and infected insect bites*. In 1942 a large number of patients suffering from skin diseases were admitted to hospitals and almost the same number were attending the medical inspection rooms for the same complaint. The problem became so acute that a Command dermatologist was sent to Ceylon for delivering lectures to unit medical and combatant officers on the prevention and early treatment of skin diseases. More frequent inspection of feet was also instituted. As a result of these steps the incidence of skin diseases (and scabies) fell considerably in 1943. The incidence of these diseases increased with the onset of hot-moist weather and decreased with the cold weather. The rates of absolute incidence (per 1,000 strength) of skin diseases for NCs(E) were 8·7 in 1944 and 5·6 in 1945. The rates of scabies on the other hand for 1942, 1943, 1944 and 1945 were 7, 10, 6 and 8 per 1,000 respectively.

The rates of incidence (per 1,000 strength) of common cold were 12·8 in 1942, 17·6 in 1943 and 10·9 in 1944. It was only during 1945 that a low rate of 2·6 per 1,000 was registered. In terms of its relative value (in diseases) (Table 5) it was responsible for 1·6 per cent. of hospital admissions in 1942, 2·6 per cent. in 1943, 3·0 per cent. in 1944 and 1·2 per cent. in 1945. The incidence rate of eye diseases was 17, 11, 5 and 4·6 per 1,000 in 1942, 1943, 1944 and 1945 respectively.

One case of cerebrospinal fever was reported in 1942 among NCs(E). in 1944 18 cases and in 1945 12 cases were reported from this disease. From the available evidence it can be stated that most of them occurred among the Indian Labour Units in Ceylon.

Diphtheria was one of the infectious diseases notified in Ceylon and one case in each of the years 1942 and 1943 and two cases in 1944 were reported there.

The number of cases admitted for enteric group of fevers was 1, 4 and 6 during 1943, 1944 and 1945 respectively.

Hepatitis (largely infective hepatitis) was said to be particularly frequent among labour units. Its incidence was unduly high in 1944 when NCs(E) alone registered 104 cases. The number decreased in 1945, when 57 cases were reported. The number of cases in 1942 and 1943 were comparatively small. They were seven and twelve respectively.

Though smallpox was an everpresent threat in the civil population of Ceylon, only one case was reported each in 1942 and 1944 and two cases in 1945.

One case of typhus fever was notified in 1944 (September). No cases were reported during the rest of the period under consideration among the NCs(E).

Influenza cases were always only a few, 2 in 1942, 4 in 1943 and 3 in 1944. No cases occurred in 1945. On the other hand 19 cases from pneumonia were reported in 1945 only.

Heat exhaustion caused one admission to hospitals in 1943.

Death rate, from all causes, for NCs(E) fluctuated between 2 and 3 per 1,000 during the period under consideration. Case mortality or death rate due to specific causes have not been possible to evaluate for lack of necessary data.

In Table 6 relative casualty rates from groups of diseases are given. They show that infective and parasitic diseases in themselves accounted for 45 per cent. of all admissions in 1942, 42 per cent. in 1943, 46 per cent. in 1944 and 48 per cent. in 1945. That is, these diseases were responsible for about half the total admissions each year. The percentage of digestive diseases (which include diarrhoea) fluctuated between 6 and 9. Diseases of the respiratory system caused 3 and 4 per cent. respectively of total admissions during 1942 and 1943, i.e. before the inclusion in the admissions of NCs(E) the admissions for labour units. After 1943 the corresponding percentages were 9.5 in 1944 and 6.7 in 1945. A similar increase in the relative percentages was affected by the diseases of nervous system and sense organs (which include ear, nose, throat diseases and eye diseases other than trachoma) after 1943.

A point of comparative significance that can be made about in this table lies in the falling percentages recorded in respect of the group designated here as "all other diseases". The level of their contribution to all admissions upto 1943 was in the neighbourhood of 39 per cent. which fell down to about 14 per cent. during each of 1944 and 1945. Other things remaining the same, this again indicates that during the latter years morbidity among troops was being diagnosed more precisely. Before, however, these figures are accepted, it may be recalled that it was only during these two years that a number of NYD cases were excluded from this group, but their exclusion also meant a difference of about 10 per cent. each year in the share of this group and still left a margin

of 15 per cent. That is, a fall from 39 to 24 per cent. from 1943 to 1944 (or to 1945) may have been due to better diagnosis.

CONCLUSION

The pattern of sickness among NCs(E) was more or less of the same type as that of the VCOs and IORs. Malaria recorded the heaviest incidence among these troops also, followed by venereal diseases, dysentery and diarrhoea, dengue, common cold, eye diseases, scabies and skin diseases.

Hepatitis (infective) was of particular importance among the diseases with lower incidence during 1944 and 1945. Heat exhaustion, typhus and poliomyelitis were almost non-existent. A few cases of diseases like cerebrospinal fever, diphtheria, enteric group of fevers, sandfly fever and smallpox were admitted.

TABLE 4

Admissions to Hospitals—Annual rates per 1,000 strength, NCs (E): SEAC (Ceylon Army Command).

Diseases			1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>					
	Cerebrospinal fever ..	..	0.30	..	0.74	0.40
	Dengue ..	..	24.95	12.77	5.74	1.20
	Diphtheria ..	..	0.30	0.19	0.08	..
	Dysentery ..	..	10.35	12.77	18.54	9.75
	Enteric group of fevers ..	..	..	0.19	0.16	0.20
	Infective hepatitis (Jaundice) ..	..	2.13	2.32	4.29	1.90
	Malaria ..	..	210.29	156.32	97.36	61.22
	Major septic diseases ..	..	..	..	0.21	0.13
	Minor septic diseases ..	..	33.47	27.66	19.86	11.08
	Mumps ..	..	0.91	0.97	0.99	2.03
	Oriental sore ..	..	0.91	..	..	0.03
	Sandfly fever ..	..	0.91	0.39	0.25	..
	Scabies ..	..	7.00	9.87	5.82	7.59
	Smallpox ..	..	0.30	..	0.04	0.07
	Tuberculosis ..	..	2.74	6.96	1.16	0.60
	Trachoma ..	..	2.74	2.32	0.45	0.17
	Typhus fever ..	..	..	..	0.04	..
	Venereal diseases ..	..	72.43	56.10	21.39	9.48
	Total ..	..	369.75	288.84	177.12	105.84
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>					
	Beri beri ..	..	..	..	0.37	0.10
	Scurvy ..	..	..	..	0.37	..
	Total ..	..	..	..	0.74	0.10

TABLE 4—(Contd.)

Diseases	1942	1943	1944	1945
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0.17
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	1.52	4.06	3.18	2.23
(5) <i>Diseases of the Nervous System and sense organs</i>				
ENT diseases ..	..	..	9.50	10.35
Eye diseases other than Trachoma ..	14.30	8.32	4.50	4.39
Total	14.30	8.32	14.00	14.74
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	..	0.97	0.08	..
Other circulatory diseases ..	..	..	1.86	0.17
Total .. ..	..	0.97	1.94	0.17
(7) <i>Diseases of the Respiratory system</i>				
Common cold ..	12.78	17.60	10.90	2.56
Tonsillitis ..	2.43	3.48	3.43	1.16
Pharyngitis ..	7.91	5.61	..	..
Influenza ..	0.61	0.77	0.12	..
Pneumonia ..	..	..	..	0.63
Other respiratory diseases ..	..	..	22.34	10.58
Total	23.74	27.47	36.79	14.94
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea ..	21.00	10.64	8.46	4.09
Other digestive diseases ..	31.95	50.69	17.34	8.85
Total	52.54	61.33	25.80	12.94
(9) <i>Diseases of the Skin and Cellular tissue</i>				
Skin diseases ..	..	..	8.67	5.62
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever ..	..	..	36.99	21.43
PUO ..	..	1.93	..	0.07
Total .. ..	..	1.93	36.99	21.49
(11) <i>All other diseases</i> ..	315.28	274.13	55.61	30.34
(12) <i>All diseases</i> ..	777.54	667.05	360.86	208.59
(13) <i>Accidents, poisoning and violence (non-battle injuries)</i>				
Burns and scalds ..	..	..	..	0.13
Other local injuries ..	38.34	24.76	26.80	13.71
Total	38.34	24.76	26.80	13.84

TABLE 4—(Contd.)

Diseases	1942	1943	1944	1945
(14) <i>Accidents, poisoning and violence (battle injuries)</i>				
Bomb wounds ..	0.30	..	..	..
Gun shot wounds ..	..	..	..	..
Shell wounds ..	..	..	..	..
Total ..	0.30	..	..	..
(15) <i>All cases</i> ..	816.19	691.82	387.65	222.43
(16) <i>Average daily sick</i> ..	56.62	24.37	9.08	9.26
(17) <i>Deaths</i> ..	2.13	2.90	3.22	2.16

TABLE 5

Relative morbidity rates: NCs(E): SEAC (Ceylon Army Command).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.04	..	0.21	0.19
Dengue ..	3.21	1.91	1.54	0.57
Diphtheria ..	0.04	0.03	0.02	..
Dysentery ..	1.33	1.91	5.14	4.67
Enteric group of fevers ..	..	0.03	0.05	0.10
Infective hepatitis (Jaundice) ..	0.27	0.35	1.19	0.91
Malaria ..	27.04	23.43	26.98	29.35
Major septic diseases ..	..	..	0.06	0.06
Minor septic diseases ..	4.30	4.15	5.50	5.31
Mumps ..	0.12	0.14	0.27	0.97
Oriental sore ..	0.12	..	..	0.02
Sandfly fever ..	0.12	0.06	0.07	..
Scabies ..	0.90	1.48	1.61	3.64
Smallpox ..	0.04	..	0.01	0.03
Tuberculosis ..	0.35	1.05	0.32	0.28
Trachoma ..	0.35	0.35	0.13	0.08
Typhus fever ..	..	..	0.01	..
Veneral diseases ..	9.31	8.41	5.93	4.55
Total ..	47.56	43.30	49.08	50.74
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri ..	..	..	0.10	0.05
Scurvy ..	..	..	0.10	..
Total ..	..	..	0.21	0.05

TABLE 5—(Contd.)

Diseases	1942	1943	1944	1945
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0.08
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	0.20	0.61	0.88	1.07
(5) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases ..	..	..	2.63	4.96
Eye diseases other than trachoma	1.84	1.25	1.25	2.11
Total	1.84	1.25	3.88	7.07
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	..	0.14	0.02	..
Other circulatory diseases ..	..	..	0.51	0.08
Total .. ..	..	0.14	0.54	0.08
(7) <i>Diseases of the Respiratory system</i>				
Common cold ..	1.64	2.64	3.02	1.23
Tonsillitis ..	0.31	0.52	0.95	0.56
Pharyngitis ..	1.02	0.84	..	..
Influenza ..	0.08	0.12	0.03	..
Pneumonia ..	..	..	..	0.30
Other respiratory diseases ..	..	..	6.19	5.07
Total	3.05	4.12	10.19	7.16
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea	2.70	1.59	2.34	1.96
Other digestive diseases ..	4.11	7.60	4.80	4.24
Total	6.81	9.19	7.15	6.20
(9) <i>Diseases of the skin and Cellular tissue</i>				
Skin diseases ..	..	..	2.40	2.70
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever .. ..	..	..	10.25	10.27
PUO .. ..	..	0.29	..	0.03
Total .. ..	..	0.29	10.25	10.30
(11) <i>All other diseases</i> ..	40.55	41.10	15.41	14.55
(12) <i>All diseases</i>	100.00	100.00	100.00	100.00

TABLE 6

Relative casualty rates: NCs(E): SEAC (Ceylon Army Command).

Specialist groups	1942	1943	1944	1945
(1) Infective and parasitic diseases	45.30	41.75	45.69	47.58
(2) Allergic, endocrine system, metabolic and nutritional diseases ..	..	..	0.19	0.04
(3) Diseases of the blood and blood forming organs ..	..	..	..	0.07
(4) Mental, psychoneurotic and personality disorders	0.19	0.59	0.82	1.00
(5) Diseases of the nervous system and sense organs ..	1.75	1.20	3.61	6.63
(6) Diseases of the circulatory system .. ..	..	0.14	0.50	0.07
(7) Diseases of the respiratory system	2.90	3.97	9.49	6.72
(8) Diseases of the digestive system	6.49	8.86	6.66	5.82
(9) Diseases of the skin and cellular tissue ..	..	..	2.24	2.53
(10) Symptoms, senility and ill-defined conditions ..	..	0.28	9.54	9.66
(11) All other diseases ..	38.63	39.63	14.35	13.64
(12) All diseases ..	95.26	96.42	93.09	93.78
(13) Non-battle injuries ..	4.70	3.58	6.91	6.22
(14) Battle injuries ..	0.04	..	..	..
(15) All cases ..	100.00	100.00	100.00	100.00

Section VI

ALL INDIAN TROOPS

Inclusion of NCs(E), which include the Indian States Labour Units, in the totals of all Indian troops will vitiate the results as the standards of health of the labour units could hardly be expected to conform to those of the regular Indian soldier. Total admissions to hospitals for all Indian troops given in Tables 7 to 12 are, therefore, exclusive of NCs(E). In Tables 7 to 9 the term Indian troops includes Indian officers and VCOs and IORs. Figures of hospital admissions for the IMNS also have been included in the totals to arrive at total Indian admissions, in Tables 10 to 12. To compare (last section of this chapter) racial morbidities, totals and rates of Indian admissions shown in Tables 7 to 12 have been used.

On comparing the three sets of Tables, 1 to 3 and 7 to 12, it will be seen that there are very small differences between the figures for VCOs and IORs and the other two totals. This is due to the fact that the combined strength of IKCOs and ICOs and IMNS officers in Ceylon never exceeded 182. Morbidity of these troops could, therefore, hardly be expected to contribute any appreciable share to that of 15,000 to 23,000 VCOs and IORs. The observations on total morbidity already made for VCOs and IORs, therefore, apply to all Indian troops. For instance, the incidence due to all causes for all Indian troops in 1942 was 928.7 per 1,000 and that for VCOs and IORs was 932.8 per 1,000 and for male Indian troops 929.6 per 1,000 (Tables 10, 1 and 7). Some other figures are provided below:—

Rate of incidence (per 1,000) strength from all causes.

Categories of troops	1943	1944	1945
VCOs and IORs	751.4	665.8	506.7
Male Indian troops	749.9	662.5	506.7
All Indian troops	748.3	661.9	506.4

There is not even a difference of 1 per cent. made to the figures of VCOs and IORs by the inclusion of the figures for IKCOs, ICOs and IMNS officers. The reduced rates for bigger totals of troops each year are indicative that Indian officers and nursing services did not contribute to the total incidence for VCOs and IORs at the rates of the latter but on a much lower rate. In other words, the morbidity among them was of a lower order.

Exactly the same order, as was the case with VCOs and IORs in respect of the importance of diseases applied to the total Indian troops also. In the case of latter also malaria registered the highest incidence, followed by venereal diseases, minor septic diseases, dysentery, diarrhoea, eye diseases, common cold, scabies, dengue and skin diseases, in that order. The trend from year to year in each of these diseases was also the same for all troops as for VCOs and IORs.

Not much variation was caused in the relative position of various groups of diseases among all causes nor in the monthly incidence of individual diseases by the addition of relevant figures for IKCOs, ICOs and IMNs to those of the VCOs and IORs.

Very little difference is also noticed in the death rates. For instance a rate of 1.86 per 1,000 for VCOs and IORs came down to 1.85 per 1,000 for male Indian troops and only 1.86 per 1,000 for all Indian troops. Similar minor reductions are noticeable in other years also.

As stated before, many diseases are present in an endemic form in Ceylon. All troops suffered heavy sickness there and Indian troops were no exception. The humidity, marshes, jungle and high temperature throughout the year favour the spread of malaria, virus diseases and fly-borne diseases. Dengue was endemic throughout the coastal belt there and infective hepatitis, dysentery, typhus (scrub), scabies and skin diseases were some of the problems medical authorities had to contend with. Despite all these, the health of Indian troops remained satisfactory. Sporadic outbreaks, assuming epidemic proportions at times, of malaria, dysentery etc. were detected by the medical authorities of Ceylon Army Command and reported to General Headquarters (India) in periodic medical liaison letters. There was a high incidence of malaria among Indian troops in 1942 due, it is stated, to three reasons, viz. continued exercises in highly malarious areas, heavy monsoon rains and occupation of aerodromes by troops in areas which inhabited infected labourers and civil population. At one time in 1942 the threat of malaria was so great that Director of Medical Services (DMS) in India arranged special inspection tours to Ceylon by his Deputy Director of Hygiene and Pathology (DDH & P) and Deputy Assistant Director of Medical Services (DADMS). Military authorities also assumed control of all areas adjoining the camps to check infection. From 1943 onwards there was a continuous decline in the incidence of malaria.

Venereal diseases increased among the soldiers whenever the number of extensive exercises was decreased. To stop their spread recreational facilities were augmented in 1943 and civil medical authorities were asked to treat infected prostitutes while in prison to avoid their spreading the diseases when released. Several new Prophylactic Aid Centres were opened and diagnostic facilities improved. All these steps seem to have brought about an appreciable fall in the incidence of venereal diseases after 1943 which continued to the end of 1945.

Amongst skin diseases a large majority of hospital admissions was said to have been caused by *ulcus tropicum*. One Indian infantry unit in Trincomalee had 78 men hospitalised for tropical ulcers in October 1942. At the same time 68 men were attending unit medical inspection room for the same ailment. A series of lectures to medical and combatant officers were delivered by a command dermatologist. Better preventive measures were also adopted.

It may be added that the differential between the periods of hospitalisation caused by such conditions as malaria, dengue, infective hepatitis,

dysentery and typhus among Indian troops in Ceylon would make a valuable study. But necessary information for such a study is not available at present.

TABLE 7

Admissions to Hospitals—Annual rates per 1,000 strength: Indian Troops (less IMNS): SEAC (Ceylon Army Command).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.53	0.17	..	0.35
Dengue	17.01	10.61	15.75	3.77
Diphtheria	0.07	..	0.12	0.21
Dysentery	19.12	22.56	24.63	18.78
Enteric group of fevers ..	0.13	0.09	0.06	..
Infective Hepatitis (Jaundice) ..	6.72	3.59	5.58	5.86
Malaria	193.88	188.49	154.55	64.56
Major septic diseases ..	..	..	0.75	0.07
Minor septic diseases ..	71.33	44.00	21.79	24.50
Mumps	2.11	0.78	1.39	2.65
Oriental sore	0.53	0.22	0.52	0.07
Poliomyelitis .. ..	..	0.13	..	..
Sandfly fever	1.25	1.13	1.57	..
Scabies	15.76	15.89	10.05	16.47
Smallpox	0.07	0.13	0.06	0.14
Tuberculosis	3.49	9.96	1.68	1.19
Trachoma	2.11	1.65	0.87	0.77
Typhus fever	0.26	0.26	0.17	0.14
Venereal diseases	46.34	44.39	39.51	36.85
Total	380.71	344.06	279.41	176.38
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri .. ..	..	..	0.06	..
Scurvy .. ..	..	..	0.99	..
Total .. ..	..	..	1.05	..
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	3.91
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases	2.64	2.94	4.53	5.86
(5) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases .. ..	..	..	24.98	28.06
Eye diseases other than Trachoma	20.63	14.47	11.68	17.87
Total	20.63	14.47	36.66	45.93

TABLE 7—(Contd.)

Diseases		1942	1943	1944	1945
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	0.13	0.22	0.41	0.28
	Other circulatory diseases ..	..	..	4.07	0.49
	Total	0.13	0.22	4.47	0.77
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	17.67	8.92	25.74	8.38
	Tonsillitis	5.41	4.11	4.53	5.02
	Pharyngitis	14.57	6.84	..	..
	Influenza	1.98	0.48	0.17	0.35
	Pneumonia .. ..	..	..	..	3.28
	Other respiratory diseases ..	..	..	26.90	27.64
	Total	39.62	20.35	57.35	44.67
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	31.18	22.09	13.87	11.38
	Other digestive diseases ..	50.17	28.28	31.49	28.34
	Total	81.35	50.37	45.38	39.71
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases .. ..	..	..	20.86	21.64
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever .. ..	..	..	66.06	34.76
	PUO	0.99	2.08	0.06	..
	Total	0.99	2.08	66.12	34.76
(11)	<i>All other diseases</i> ..	337.93	267.53	94.82	90.04
(12)	<i>All diseases</i>	864.00	702.02	610.66	463.67
(13)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Burns and scalds .. ..	..	..	..	1.19
	Other local injuries ..	64.93	47.08	51.48	41.74
	Total	64.93	47.08	51.48	42.93
(14)	<i>Accidents, Poisoning and Violence (battle injuries)</i>				
	Bomb wounds	0.07	..	..	..
	Gunshot wounds	0.59	0.78	0.35	0.07
	Shell wounds .. ..	..	0.04	..	..
	Total	0.66	0.82	0.35	0.07
(15)	<i>All cases</i>	929.59	749.92	662.48	506.67
(16)	<i>Deaths</i>	1.85	2.34	1.92	1.54

TABLE 8

Relative morbidity rates: Indian Troops (All types less IMNS): SEAC (Ceylon Army Command).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.06	0.02	..	0.07
Dengue	1.97	1.51	2.58	0.81
Diphtheria	0.01	..	0.02	0.04
Dysentery	2.21	3.21	4.03	4.05
Enteric group of fevers ..	0.01	0.01	0.01	..
Infective Hepatitis (Jaundice) ..	0.78	0.51	0.91	1.26
Malaria	22.44	26.85	25.31	13.92
Major septic diseases ..	..	..	0.12	0.01
Minor septic diseases ..	8.26	6.27	3.57	5.28
Mumps	0.24	0.11	0.23	0.57
Oriental sore	0.06	0.03	0.09	0.01
Poliomyelitis .. ..	..	0.02	0.06	..
Sandfly fever	0.14	0.16	0.26	..
Scabies	1.82	2.26	1.65	3.55
Smallpox	0.01	0.02	0.01	0.03
Tuberculosis	0.40	1.42	0.28	0.26
Trachoma	0.24	0.23	0.14	0.17
Typhus fever	0.03	0.04	0.03	0.03
Venereal diseases ..	5.36	6.32	6.47	7.95
Total	44.07	49.01	45.76	38.04
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri .. ..	..	..	0.01	..
Scurvy .. ..	..	..	0.16	..
Total .. ..	..	..	0.17	..
(3) <i>Diseases of the Blood and blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0.84
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	0.30	0.42	0.74	1.26
(5) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases .. ..	..	..	4.09	6.05
Eye diseases other than trachoma	2.39	2.06	1.91	3.85
Total	2.39	2.06	6.00	9.90
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0.01	0.03	0.07	0.06
Other circulatory diseases ..	..	..	0.67	0.10
Total	0.01	0.03	0.73	0.17

TABLE 8—(Contd.)

Diseases	1942	1943	1944	1945
(7) <i>Diseases of the Respiratory system</i>				
Common cold ..	2.04	1.27	4.21	1.81
Tonsillitis ..	0.63	0.59	0.74	1.08
Pharyngitis ..	1.69	0.97	..	..
Influenza ..	0.23	0.07	0.03	0.07
Pneumonia ..	..	..	..	0.71
Other respiratory diseases ..	..	..	4.40	5.96
Total ..	4.58	2.90	9.39	9.64
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea ..	3.61	3.15	2.27	2.45
Other digestive diseases ..	5.81	4.03	5.16	6.11
Total ..	9.41	7.17	7.43	8.56
(9) <i>Diseases of the Skin and Cellular tissue</i>				
Skin diseases ..	..	..	3.42	4.67
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever ..	..	..	10.82	7.50
PUO ..	0.11	0.30	0.01	..
Total ..	0.11	0.30	10.83	7.50
(11) <i>All other disease</i> ..	39.12	38.10	15.53	19.42
(12) <i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 9

Relative casualty rates: Indian Troops (all types less IMNS): SEAC (Ceylon Army Command).

Specialist groups	1942	1943	1944	1945
(1) Infective and parasitic diseases ..	40.95	45.88	42.18	34.81
(2) Allergic, endocrine system, metabolic and nutritional diseases ..	..	..	0.16	..
(3) Diseases of the blood and blood forming organs ..	..	..	..	0.77
(4) Mental, psychoneurotic and personality disorders ..	0.28	0.39	0.68	1.16
(5) Diseases of the nervous system and sense organs	2.22	1.93	5.53	9.06
(6) Diseases of the circulatory system ..	0.01	0.03	0.67	0.15
(7) Diseases of the respiratory system ..	4.26	2.71	8.65	8.79
(8) Diseases of the digestive system ..	8.75	6.72	6.85	7.84

TABLE 9—(Contd.).

Specialist groups	1942	1943	1944	1945
(9) Diseases of the skin and cellular tissue ..	..	..	3.15	4.27
(10) Symptoms, senility and ill-defined conditions ..	0.11	0.28	9.98	6.86
(11) All other diseases ..	36.35	35.67	14.31	17.77
(12) All diseases ..	92.94	93.61	92.18	91.52
(13) Non-battle injuries ..	6.99	6.28	7.77	8.47
(14) Battle injuries ..	0.07	0.11	0.05	0.01
(15) All cases ..	100.00	100.00	100.00	100.00

TABLE 10

*Admissions to Hospitals—Annual rates per 1,000 strength: Indian Troops
(All types): SEAC (Ceylon Army Command).*

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.53	0.17	..	0.35
Dengue ..	16.99	10.97	15.77	3.76
Diphtheria ..	0.07	..	0.12	0.21
Dysentery ..	19.09	22.57	24.64	18.75
Enteric group of fevers ..	0.13	0.09	0.06	..
Infective Hepatitis (Jaundice) ..	6.71	3.58	5.57	5.86
Malaria ..	193.63	187.89	154.30	64.48
Major septic diseases ..	..	..	0.75	0.07
Minor septic diseases ..	71.37	44.10	21.74	24.47
Mumps ..	2.11	0.78	1.39	2.65
Oriental sore ..	0.53	0.22	0.52	0.07
Poliomyelitis ..	..	0.13	0.35	..
Sandfly fever ..	1.25	1.12	1.57	..
Scabies ..	15.73	15.84	10.03	16.45
Smallpox ..	0.07	0.13	0.06	0.14
Tuberculosis ..	3.49	9.92	1.68	1.18
Trachoma ..	2.11	1.64	0.87	0.77
Typhus fever ..	0.26	0.26	0.17	0.14
Venerable diseases ..	46.28	44.23	39.43	36.81
Total ..	380.34	343.25	279.04	176.16
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri ..	..	..	0.06	..
Scurvy ..	..	..	0.99	..
Total ..	..	..	1.04	..
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia ..	..	..	..	3.90

TABLE 10—(Contd.).

Diseases		1942	1943	1944	1945
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	2.63	2.93	4.52	5.86
(5)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases ..	..	..	24.99	26.09
	Eye diseases other than trachoma ..	20.61	14.46	11.65	17.85
	Total ..	20.61	14.46	36.65	45.94
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	..	..	0.41	0.28
	Other circulatory diseases	0.13	0.22	4.06	0.49
	Total ..	0.13	0.22	4.46	0.77
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	17.64	8.93	25.69	8.36
	Tonsillitis ..	5.40	4.10	4.52	5.02
	Pharyngitis ..	14.55	6.82	..	..
	Influenza ..	1.97	0.47	0.17	0.35
	Pneumonia ..	..	..	..	3.28
	Other respiratory diseases	..	..	26.91	27.60
	Total ..	39.56	20.32	57.29	44.61
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	31.14	22.05	13.86	11.36
	Other digestive diseases	50.17	28.27	31.49	28.30
	Total ..	81.31	50.32	45.35	39.66
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	..	..	20.99	21.61
(10)	<i>Symptoms, senility and ill-defined conditions</i>				
	NYD fever ..	..	..	65.93	34.72
	PUO ..	0.99	2.07	0.06	..
	Total ..	0.99	2.07	65.99	34.72
(11)	<i>All other diseases</i>	337.62	266.99	94.87	90.27
(12)	<i>All diseases ..</i>	863.19	700.56	610.21	463.51
(13)	<i>Accidents, Poisoning and Violence (non-battle injuries)</i>				
	Burns and scalds ..	..	..	..	1.18
	Other local injuries ..	64.85	46.95	51.38	41.69
	Total ..	64.85	46.95	51.38	42.87
(14)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Bomb wounds ..	0.07	..	..	..
	Gunshot wounds ..	0.59	0.78	0.35	0.07
	Shell wounds ..	..	0.04	..	..
	Total ..	0.66	0.82	0.35	0.07
(15)	<i>All cases ..</i>	928.70	748.33	661.93	506.45
(16)	<i>Deaths ..</i>	1.84	2.33	1.91	1.53

TABLE 11

Relative morbidity rates: Indian Troops (all types): SEAC (Ceylon Army Command).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.06	0.02	..	0.07
Dengue	1.97	1.51	2.58	0.81
Diphtheria	0.01	..	0.02	0.04
Dysentery	2.21	3.22	4.04	4.05
Enteric group of fevers ..	0.01	0.01	0.01	..
Infective hepatitis (Jaundice) ..	0.78	0.51	0.91	1.26
Malaria	22.43	26.82	25.29	13.91
Major septic diseases ..	..	..	0.12	0.01
Minor septic diseases ..	8.27	6.29	3.56	5.28
Mumps	0.24	0.11	0.23	0.57
Oriental sore ..	0.06	0.03	0.08	0.01
Poliomyelitis .. ..	..	0.02	0.06	..
Sandfly fever	0.14	0.16	0.26	..
Scabies	1.82	2.26	1.64	3.55
Smallpox	0.01	0.02	0.01	0.03
Tuberculosis	0.40	1.42	0.28	0.26
Trachoma	0.24	0.23	0.14	0.16
Typhus fever	0.03	0.04	0.03	0.03
Venereal diseases ..	5.36	6.31	6.46	7.94
Total	44.07	49.00	45.73	38.01
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri .. ..	..	..	0.01	..
Scurvy .. ..	..	..	0.16	..
Total .. ..	..	..	0.17	..
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0.84
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	0.30	0.42	0.74	1.26
(5) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases .. ..	..	..	4.10	6.06
Eye diseases other than trachoma	2.39	2.06	1.91	3.85
Total	2.39	2.06	6.01	9.91
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	..	..	0.07	0.06
Other circulatory diseases	0.01	0.03	0.66	0.10
Total	0.01	0.03	0.73	0.16

TABLE 11—(Contd.)

Diseases	1942	1943	1944	1945
(7) <i>Diseases of the Respiratory system</i>				
Common cold ..	2.04	1.27	4.21	1.80
Tonsillitis ..	0.62	0.58	0.74	1.08
Pharyngitis ..	1.69	0.97	..	..
Influenza ..	0.23	0.07	0.03	0.07
Pneumonia ..	..	..	..	0.71
Other respiratory diseases ..	..	..	4.41	5.96
Total ..	4.58	2.90	9.39	9.62
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea ..	3.61	3.15	2.27	2.45
Other digestive diseases ..	5.81	4.03	5.16	6.11
Total ..	9.42	7.18	7.43	8.56
(9) <i>Diseases of the Skin and Cellular tissue</i>				
Skin diseases ..	..	..	3.44	4.66
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever ..	..	..	10.80	7.49
PUO ..	0.11	0.30	0.01	..
Total ..	0.11	0.30	10.81	7.49
(11) <i>All other diseases</i> ..	39.12	38.12	15.55	19.48
(12) <i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 12

Relative casualty rates; Indian Troops (All types) SEAC (Ceylon Army Command).

Specialist groups	1942	1943	1944	1945
(1) Infective and parasitic diseases ..	40.95	45.90	42.15	34.78
(2) Allergic, endocrine system, metabolic and nutritional diseases ..	..	..	0.16	..
(3) Diseases of the blood and blood forming organs ..	..	..	..	0.77
(4) Mental, psychoneurotic and personality disorders ..	0.28	0.39	0.68	1.16
(5) Diseases of the nervous system and sense organs ..	2.22	1.93	5.54	9.07
(6) Diseases of the circulatory system ..	0.01	0.03	0.67	0.15
(7) Diseases of the respiratory system ..	4.27	2.68	8.66	8.82

TABLE 12—(Contd.).

Specialist groups	1942	1943	1944	1945
(8) Diseases of the digestive system	8.75	6.72	6.85	7.83
(9) Diseases of the skin and cellular tissue ..	..	..	3.17	4.27
(10) Symptoms, senility and ill-defined conditions ..	0.11	0.28	9.97	6.86
(11) All other diseases ..	36.36	35.68	14.34	17.83
(12) All diseases.. ..	92.95	93.62	92.19	91.52
(13) Non-battle injuries ..	6.98	6.27	7.76	8.47
(14) Battle injuries ..	0.07	0.11	0.05	0.01
(15) All cases	100.00	100.00	100.00	100.00

Section VII

CEYLONESE OTHER RANKS

Ceylon Defence Force was brought into being in 1942. Ceylonese were recruited in it as officers, other ranks and ATS(C). The first two were male troops whereas the ATS(C) were female. Hospital admissions for each of these categories of troops will be considered separately. In the last section pertaining to Ceylonese troops, hospital admissions for all the Ceylonese troops will be jointly considered. The basis of evaluating strength of Ceylonese troops is the same as that of the East African troops.

Absolute rates of incidence for Ceylonese other ranks (per 1,000 strength) are given in Table 13, whereas their relative rates are set out in Table 14. Relative casualty rates for groups of diseases are embodied in Table 15. Figures for 1942 pertain only to four months of that year, viz. September to December. Even if the incidence rates for these months are taken as a correct approximation i.e. $\frac{1}{3}$ of the total annual morbidity of these troops, these figures as given in Table 13, are not strictly comparable to the annual figures for 1943, 1944 and 1945. Attention in this section will, therefore, be mainly confined to the figures of these three years and a special mention made about the figures for the four months of 1942 whenever their nature demands it.

The morbidity of Ceylonese other ranks will be found to correspond more closely to that of the Indian Other Ranks than to that of the Africans. Like the Indian troops, Ceylonese Other Ranks suffered the most from malaria. The relevant rates of incidence in the three years were 214.9 in 1943, 144.1 in 1944 and 109.0 in 1945 (Table 13). On comparing these rates with the Indian rates (Table 1) it will be seen that the Ceylonese registered higher than the Indian rates during 1943 and 1945 but lower in 1944. The extent of the higher Ceylonese incidence was 14 per cent. over the Indian rate in 1943 and 68 per cent. in 1945, whereas in 1944 the Ceylonese rate was 7 per cent. lower. The magnitude of the comparatively higher Ceylonese incidence in 1945 is particularly remarkable because this was the year in which all troops had shown very much reduced morbidity from malaria. The rate for VCOs and IORs in 1945 was about $\frac{1}{3}$ of that in 1942 or 1943. In the case of the Ceylonese troops, however, the rate in 1945 was only half of that in 1943. The observed differences in Ceylonese rates from year to year, when tested against the standard error of their difference, do not indicate significant variation, i.e. the variations in the malaria incidence from 1943 to 1945 were such as could have arisen by chance. In 1945 the Indian rate was about $\frac{2}{3}$ of the Ceylonese rate. The higher Ceylon incidence was probably due to the unsatisfactory observance by these troops of the anti-malaria measures. Among the Ceylonese, malaria was responsible for 25 per cent. of sick admissions in 1943, 19 per cent. in 1944 and 18 per cent. in 1945 (Table 14).

Figures of monthly admissions to hospitals from malaria among the Ceylonese Other Ranks are given on next page.

Monthly admissions from malaria in respect of Ceylonese Other Ranks.

Month			1942	1943	1944	1945
January	..	..	..	126	297	391
February	..	..	..	295	295	205
March	..	..	..	429	219	180
April ..	..	..	..	577	313	197
May ..	..	..	..	760	429	219
June ..	..	..	..	469	291	206
July ..	..	..	..	410	190	172
August	..	..	..	273	178	191
September	..	..	..	218	131	121
October	..	..	..	110	262	116
November	..	..	135	439	265	142
December	..	..	118	528	481	419

Variations in the strength figures of these troops of larger than 2 to 3 per cent. did not generally occur during the months for which admissions are given above. These figures, therefore, are broadly comparable from month to month without necessitating the rates of absolute incidence to be calculated. Two peaks, in accordance with the two monsoon seasons in Ceylon, are clearly noticeable in the monthly figures given above, one in April-May each year and the other around December. The low figure of admissions in December 1942, as against those of November of the same year, was perhaps a result of the stoppage by the Ceylon Command authorities of scheduled manoeuvres for that month. Any sudden increase in admissions such as that in August 1945, in between the two peak periods, may be due to all or any of the following causes:—

- (i) Manoeuvres and exercises,
- (ii) Fresh recruitment from malarious areas during and before that month,
- (iii) Improper observance of anti-malaria measures,
- (iv) High incidence rate from this disease among the civil population (a direct relation between the spread of the disease among the civilians and its high incidence in the army was observed by the command medical authorities) and
- (v) Heavy monsoons.

It will be seen in the table given above that not very large fluctuations in the admission figures were registered during this period. Monthly average admissions for 1943 were about 386. The corresponding figures for 1944 and 1945 were 280 and 213 respectively. This indicates a drop of 45 per cent. in the average figure. This drop was less than the one in case of VCOs and IORs.

Common cold caused 538 hospital admissions (with a rate of 33.1 per 1,000) during the months of September to December of 1942, 1,765 cases (at a rate of 81.8 per 1,000) in 1943, 2,082 cases (89.5 per 1,000) in 1944 and 1,900 cases (80.9 per 1,000) in 1945. Variations from year to year in these rates are not statistically significant. Common

cold had almost even rates of incidence during the three years. The corresponding annual figures for the VCOs and IORs during the four years were 268 (17·8 per 1,000), 206 (9·0 per 1,000), 443 (26·0 per 1,000) and 120 (8·4 per 1,000). The difference in the incidence of common cold between these troops is obvious. Its incidence among the Ceylonese was about nine times of that in the Indians in 1943, three and a half times in 1944 and about ten times in 1945. An idea of its intensity may be had from the fact that common cold was only second to malaria in the annual incidence among the Ceylonese Other Ranks. In terms of its relative importance among diseases, common cold was responsible for 9·4 per cent. of sick admissions in 1943, 11·6 per cent. in 1944 and 13·1 per cent. in 1945.

Other diseases allied to common cold, which have shown great divergence in their incidence between the Indian and Ceylonese other ranks, are the respiratory diseases. The relevant figures are reproduced below:—

Disease		Rate per 1,000 strength		
		1943	1944	1945
Tonsillitis	(a) CORs	4·6	3·7	7·7
	(b) VCOs and IORs	4·1	4·6	5·0
Pharyngitis	(a) CORs	0·8	..	..
	(b) VCOs and IORs	6·9	..	..
Influenza	(a) CORs	28·4	10·9	9·8
	(b) VCOs and IORs	0·5	0·2	0·4
Pneumonia	(a) CORs	..	..	3·1
	(b) VCOs and IORs	..	..	3·3
Other respiratory diseases	(a) CORs	..	31·5	25·6
	(b) VCOs and IORs	..	27·0	27·6
All respiratory diseases	(a) CORs	115·7	135·6	127·1
	(b) VCOs and IORs	20·4	57·7	44·7

The respiratory diseases were about three times as frequent among the Ceylonese as among the VCOs and IORs in 1943, about more than half as much again as that among the Indians in 1944 and 1945. Amongst the individual diseases of this group there was not much variation in respect of tonsillitis and pneumonia. Pharyngitis was present in them only in 1943, due perhaps to a special epidemic, but its incidence among the VCOs and IORs was about eight times of that among the Ceylonese Other Ranks. This position was completely reversed in respect of influenza which registered high incidence rates of 28·4 per 1,000 in 1943, 10·9 in 1944 and 9·8 in 1945 among the Ceylonese against the rates of 0·5, 0·2 and 0·4 per 1,000 for the VCOs and IORs in 1943, 1944 and 1945 respectively. No reason could be assigned for this high rate from influenza among the Ceylonese. Influenza was responsible for 3·3 per cent. of sick admissions among them in 1943, 1·4 per cent. in 1944 and 1·6 per cent. in 1945 (Table 14).

Venereal diseases registered increasing incidence from year to year among the Ceylonese Other Ranks as among the Africans¹⁰. It

¹⁰ See page 103.

was not so for the Indian troops among whom the annual incidence from these diseases kept on falling. The rates per 1,000 strength among the Ceylonese were 24 in 1943, 26 in 1944 and 33 in 1945 (Table 13). These rates did not differ significantly (statistically) from year to year despite the fact that an increase in the rate of 27 per cent. was registered in 1945 from 1944. Relative rates of venereal diseases also show increasing share of these diseases from year to year. They were responsible for 2·8 per cent. of sick admissions in 1943, 3·4 per cent. in 1944 and 5·4 per cent. in 1945. Like the VCOs and IORs, the monthly admissions from venereal diseases among the Ceylonese Other Ranks do not show any periodicity. The relevant figures are given below:—

Admissions for Venereal Diseases Ceylonese Other Ranks—1942-45.

Month			1942	1943	1944	1945
January	..	..	..	31	71	38
February	..	..	..	34	79	47
March	..	..	..	44	60	70
April	..	..	..	29	64	64
May	..	..	..	36	47	59
June	..	..	..	39	42	60
July	..	..	..	41	45	76
August	..	..	..	61	57	102
September	..	..	..	67	30	55
October	..	..	..	56	48	77
November	..	..	19	35	35	70
December	..	..	31	42	37	68

The differences in monthly strengths of these troops were not large enough. We shall, therefore, not be wrong in discussing the admission figures, given on last page without calculating the rates. The highest admissions of any month in 1943 were sixty-seven during September; the corresponding figures during 1944 and 1945 were seventy-nine in February of the former and 102 in August of the latter. In respect of average monthly admissions also during these years a similarly rising trend is discernible. Monthly average admissions during the two months of 1942 were twenty-five, during 1943, 1944 and 1945 were forty-three, fifty-one and sixty-five respectively. It can, therefore, be safely concluded that any measures taken in this Command to check the spread of these diseases among troops did not quite succeed so far as Ceylonese Other Ranks were concerned. The high figure in 1945 could partly be due to better diagnosis also. Another conclusion that could be based on these figures is about the absence of any regular seasonal trend in them. Towards the end of each year and in the beginning of the next an increasing flow of admissions can be seen. Similarly July and August, each year, registered higher admissions. A month of heavy admissions is generally followed by one of low admissions. Among them, some of the months of higher admissions might be those in which these troops were not engaged in a manoeuvres. It should be borne in mind that Ceylon is a small island where troops could not be completely isolated from the

civilian population who might have provided ready ground for fresh infections.

The incidence of diarrhoea was higher than that of dysentery among the Ceylonese. That was the case with Ceylonese Officers also (Table 16). As may be remembered, this was not the case with any other categories of troops in Ceylon, including the British. The relevant rates for Ceylonese Other Ranks were 30.6 in 1943, 25.4 in 1944 and 18.9 in 1945 (Table 13). The rate for the four months of 1942 was 12.44 which when estimated for the whole year, on that basis, would be 37.32 per 1,000. All these figures show that diarrhoea incidence among the Ceylonese Other Ranks kept on falling gradually. In 1945 a fall of 25 per cent. was noted over the figure of 1944. The level of incidence from diarrhoea was always higher among the Ceylonese than the Indians. The corresponding rates for VCOs and IORs were 22 in 1943, 14 in 1944 and 11 in 1945. In terms of its importance from the point of view of hospital admissions it was responsible for 3.5 per cent. of admissions in 1943 (against 3.1 per cent. of the VCOs and IORs); for 3.3 per cent. in 1944 (against 2.3 per cent. of VCOs and IORs) and for 3.1 per cent. in 1945 (against 2.4 per cent. of VCOs and IORs).

Monthly admissions to hospitals from diarrhoea, among the Ceylonese Other Ranks—1942-45.

Month			1942	1943	1944	1945
January	..	..	..	69	36	64
February	..	..	..	43	56	46
March	..	..	..	58	37	40
April	..	..	..	35	26	47
May	..	..	..	33	39	24
June	..	..	..	72	56	44
July	..	..	..	19	54	34
August	..	..	..	56	47	25
September	..	..	..	35	62	31
October	..	..	..	87	58	20
November	..	..	37	94	53	29
December	..	..	47	59	67	39
Average monthly admissions			42	55	49	37

It will be seen from the above table that the peak figure of admissions in any month of 1943 was higher than that in 1944 and the peak figure of 1944 similarly was higher than the corresponding figure in 1945. A similar trend is seen in the average monthly figures during the three years. The relevant admissions were 55 in 1943, 49 in 1944 and 37 in 1945. The dysentery rates were almost the same in the Ceylonese Other Ranks and VCOs and IORs. These were 26 per 1,000 in 1943, 19 in 1944 and 12 in 1945. They are very much lower than the corresponding rates in the East Africans. Like diarrhoea, these rates show a steep falling incidence from year to year among the Ceylonese. For instance a fall of 27 per cent. was registered in 1944 and 37 per cent. in

1945. A similar fall is indicated by the average monthly admission figures, as given below, over the three years. These were 47 in 1943, 37 in 1944 and 23 in 1945. It caused three per cent. of total sick admissions in 1943, 2.5 per cent. in 1944 and 1.9 per cent. in 1945.

Monthly admissions of dysentery cases among Ceylonese Other Ranks—1942-45.

Month			1942	1943	1944	1945
January	..	..	..	18	29	22
February	..	..	..	9	25	25
March	..	..	..	20	24	29
April	..	..	..	9	38	27
May	..	..	..	43	31	36
June	..	..	..	49	51	44
July	..	..	..	50	59	18
August	..	..	..	25	50	15
September	..	..	..	62	37	11
October	..	..	..	150	54	11
November	..	..	5	99	25	14
December	..	..	11	29	16	20
Average monthly admissions			8	47	37	23

A curious relationship is observed in admission figures of venereal diseases and of dysentery, diarrhoea and malaria among Ceylonese Other Ranks. An *increase* or *decrease* in the admissions from the former is generally accompanied by a corresponding *decrease* or *increase* in the admissions due to all or any of the diseases in the latter. No statistical error will enter in comparing crude admission figures here as these are in the nature of inter-cell comparisons for the same period (month) and the same troops. It will be seen that it is not the extent of the increase or decrease in either case that is being compared but only the fact of these changes having come about. The explanation seems to be that whenever troops were busy in exercises and manoeuvres there was little opportunity for them to contract venereal diseases, and during these exercises in jungle areas they were liable to contract diarrhoea, dysentery and malaria.

Minor septic diseases had incidence rates of 30, 13 and 13 per 1,000 during 1943, 1944 and 1945 respectively. They caused 648 admissions (3.5 per cent. of all sick admissions) in 1943 and a little more than 300 in each of the years 1944 and 1945. There were 200 admissions in the four months of 1942 and it is likely the incidence for the whole year was not less than that observed in 1943. The incidence of the corresponding rates for VCOs and IORs was lower than the Ceylonese by 32 per cent. in 1943, 41 per cent. in 1944 and 47 per cent. in 1945.

It seems, that the average annual rate of skin diseases was 25 per 1,000 in Ceylonese Other Ranks. The available information of 26.8 per 1,000 in 1944 and 23.3 per 1,000 in 1945 compares very favourably (Table 13) with the corresponding information for the British Other

Ranks. The rates for the latter were 48 in 1944 and 69 in 1945. VCOs and IORs had an even rate of about 21 per 1,000 during the years.

It is also reported that a large majority of hospital admissions shown as from these diseases were due to ulcers resulting from neglected abrasions and infected insect bites. It may be recalled that towards the end of 1942 a certain number of men from Indian infantry units were hospitalised for tropical ulcers and minor septic infections and that about an equal number of them were attending their unit medical inspection room simultaneously for similar complaint. This state of affairs could not have been very different for the Ceylonese troops. The number actually sick from skin diseases among the Ceylonese, therefore, might be taken as about twice those that are shown here (Table 13) as admitted to hospitals each year.

There appears to be a distinct correlation between the high incidence in terms of hospital admission and climate. The comparatively lower admissions, as indicated below towards the beginning and end of each year are noticeable. With the setting in of the monsoons, it was reported that the ground became wet enabling ticks to multiply, thus increasing the incidence of skin diseases. Cold months in a year brought about a fall in their incidence.

Monthly admissions for skin diseases Ceylonese Other Ranks—1944-45.

Month			1944	1945
January	..	..	55	30
February	..	..	52	36
March	..	..	40	..
April ..	..	..	74	32
May ..	..	..	65	38
June ..	..	..	50	51
July ..	..	..	54	56
August..	..	..	69	78
September	..	..	58	76
October	..	..	38	45
November	..	..	37	47
December	..	..	31	59

A fall of about 13 per cent. in 1945 was registered in the incidence of skin diseases. This possibly was largely due to the lectures delivered by the command dermatologist to medical and combatant officers regarding prevention and early treatment of skin cases.

As against skin diseases, the incidence of scabies increased from 10.6 per 1,000 in 1943 to 13.5 in 1944 and 18.4 in 1945. In terms of its relative rates, scabies was responsible for 1.2 per cent. in 1943, 1.7 per cent. in 1944 and 3.0 per cent. in 1945.

As was the case with common cold and scabies, Ceylonese Other Ranks registered very much higher morbidity from mumps than the Indian troops. The incidence rates were 7.6 in 1943 (against 0.8 per

1,000 of VCOs and IORs); 5.6 in 1944 (against 1.4 of the VCOs and IORs) and 12.4 in 1945 (against 2.6 of the VCOs and IORs). The incidence of mumps was heavy in 1945 when 12 men were admitted to hospital out of every 1,000 and it was responsible for over 2 per cent. of all sick admissions in that year. A high admission rates of 8.25 per 1,000 from mumps was also recorded during the four months of 1942. No other troops have shown such rates. What is true of Ceylonese Other Ranks is also largely true of their ATS(C) also. The incidence of mumps amongst officers was lower than other ranks.

From the figures of incidence of eye diseases among various categories of troops in Ceylon, it can be inferred that these diseases took a heavy toll of sickness from all of them. Even the Ceylonese other ranks had rates of 15.5 in 1943, 16.5 in 1944 and 19.7 in 1945 (Table 13). These rates also indicate a rising incidence from these diseases, from year to year.

Cholera was an ever present threat to the civil population, particularly around Trincomalee. Frequent epidemics of cholera were reported among them but the military personnel were well protected. Only three cases occurred among the Ceylonese Other Ranks in 1944. It is not known how many of them proved fatal.

Dengue, which became a health problem of great magnitude to the Indians, was not so for the Ceylonese. It was responsible for twenty-eight, forty-one and nineteen admissions during 1943, 1944 and 1945 respectively. Although it was reported to be endemic all round the coastal belt of Ceylon, yet its incidence among the Ceylonese Other Ranks was not of a high order, due perhaps to their immunity.

Hepatitis (mainly infective hepatitis) which was largely prevalent in the Trincomalee area caused increasing incidence among the Ceylonese Other Ranks from year to year. The relevant rates were 3.25 per 1,000 in 1943, 5.0 per 1,000 in 1944 and 5.1 per 1,000 in 1945. Even during the four months of 1942 it had an incidence rate of 1.7. These rates were considered unduly high.

The number of cases admitted to hospital for other important diseases like tuberculosis, typhus, typhoid and plague was as follows:—

Diseases			1943	1944	1945
Tuberculosis	..	..	6	21	22
Sandfly fever	..	..	9	31	..
Enteric group of fevers	..	..	3	7	..
Diphtheria	..	..	2	1	3
Typhus fever	..	..	2	1	1
Cerebrospinal fever	..	..	1	1	3
Plague	..	..	..	3	..
Smallpox	..	..	..	..	3
Dermal leishmaniasis	..	..	1	2	..

Injuries due to enemy action were responsible for one admission (gunshot wound) in 1943 and three in 1944. Non-enemy action injuries,

however, caused incidence rates of 41.1, 47.7 and 42.6 per 1,000 during 1943, 1944 and 1945 respectively. The corresponding rates for all causes were 909.4, 819.0 and 660.4 respectively (Table 13). The difference in these rates from 1944 to 1945 is significant statistically whereas that from 1943 to 1944 is not. Again, these figures show that Ceylonese Other Ranks suffered casualties at a falling rate from 1943 to 1945. When these rates are, however, compared with those for the VCOs and IORs, it will be seen, that in 1943 the Ceylonese rate was about 21 per cent. higher than the Indian rate; in 1944 it was 23 per cent. higher and in 1945 30 per cent. higher. These comparisons bring in broad relief the better state of health of the Indian troops as against that of the Ceylonese. These rates also show that for every ten Ceylonese Other Ranks nine admissions to hospital from one cause or another were reported in 1943, eight admissions in 1944 and seven admissions in 1945. If injuries be subtracted from these figures not much difference is made by it to the incidence (Table 13).

The relative shares of various groups of diseases in the total are given in Table 15. Every year "infective and parasitic diseases" caused from 28 to 35 per cent. of all admissions. This group includes among others malaria, venereal diseases, dysentery, minor septic diseases, scabies and mumps. As has already been seen these diseases were the major causes of sickness among the Ceylonese Other Ranks and it is but natural their total share in all causes should be large. Among the major diseases, only diarrhoea and common cold are not included in the above-mentioned group. Diarrhoea comes under digestive diseases which were responsible for 7.8 per cent. of all admissions in 1943, 8.3 per cent. in 1944 and 8.7 per cent. in 1945. Two other groups which caused large number of admissions were diseases of the respiratory system and those of the nervous system and sense organs. The former caused 12.7, 16.6 and 19.2 per cent. of all admissions in 1943, 1944 and 1945 respectively and the latter 4.2 per cent. in 1944 and 6.0 per cent. in 1945.

Among all causes, diseases in themselves were never responsible for less than 93 per cent. of all admissions.

Figures of average daily sick, per year, were 710 in 1943, 713 in 1944 and 636 in 1945. During the four months of 1942 a figure of 449 was also registered. These figures indicate a load of about 3 constantly sick out of every 100 Ceylonese Other Ranks in each of 1943 and 1944 and slightly lower than three in 1945 and the four months of 1942.

There is a periodicity about the higher numbers of average daily sick per month; the high figures each year were contributed by the months April to June and December-January. These run parallel to the periodicity in the case of malaria, dysentery and diarrhoea etc., which again were the main causes of sickness among these troops.

Mortality among the Ceylonese did not exceed a rate of 2.36 per 1,000. This rate was reported in 1943, after which a rate of 1.55 per 1,000 was registered in 1944 and of 1.96 per 1,000 in 1945 (Table 13).

TABLE 13

*Admissions to Hospitals—Annual rates per 1,000 strength; Ceylonese Other Ranks:
SEAC (Ceylon Army Command).*

Diseases	1942 (Sept. to Dec.)	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	..	0.05	0.04	0.13
Cholera ..	..	..	0.13	..
Dengue ..	2.16	1.30	1.76	0.81
Diphtheria ..	..	0.09	0.04	0.13
Dysentery ..	1.11	26.11	18.87	11.59
Enteric group of fevers ..	0.55	0.14	0.30	..
Infective hepatitis (Jaundice) ..	1.66	3.25	4.99	5.11
Malaria ..	21.75	214.90	144.07	109.01
Major septic diseases ..	..	..	1.59	1.06
Minor septic diseases ..	12.32	30.05	13.46	13.55
Mumps ..	8.25	7.61	5.63	12.40
Oriental sore ..	..	0.05	0.09	..
Pediculosis ..	..	..	0.04	..
Plague ..	..	..	0.13	..
Sandfly fever ..	..	0.42	1.33	..
Scabies ..	2.34	10.57	13.46	18.40
Smallpox ..	..	..	..	0.13
Tuberculosis ..	0.18	0.28	0.90	0.94
Trachoma ..	..	0.05	..	0.17
Typhus fever ..	..	0.09	0.04	0.04
Venereal diseases ..	7.82	24.35	26.44	33.48
Total ..	58.16	319.30	233.32	206.94
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri ..	..	..	..	..
Scurvy ..	..	..	..	1.66
Total ..	..	..	..	1.66
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia ..	..	..	..	2.13
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	0.80	2.60	4.00	2.51
(5) <i>Diseases of the Nervous system and sense organs</i>				
FNT diseases ..	..	..	17.58	19.72
Eye diseases other than trachoma ..	3.76	15.40	16.51	19.55
Total ..	3.76	15.40	34.09	39.28

TABLE 13—(Contd.)

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	..	0.14	..	0.34
	Other circulatory diseases ..	..	..	7.18	0.64
	Total ..	..	0.14	7.18	0.98
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	33.14	81.85	89.51	80.94
	Tonsillitis ..	2.77	4.59	3.70	7.71
	Pharyngitis ..	0.74	0.83	..	..
	Influenza ..	14.54	28.38	10.92	9.75
	Pneumonia ..	..	..	..	3.07
	Other respiratory diseases ..	..	..	31.47	25.64
	Total ..	51.19	115.66	135.60	127.12
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	12.44	30.61	25.41	18.87
	Other digestive diseases ..	10.16	40.49	42.48	38.68
	Total ..	22.61	71.09	67.88	57.55
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	..	..	26.78	23.34
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	70.08	32.80
	PUO ..	..	0.42	0.47	..
	Total ..	..	0.42	70.55	32.80
(11)	<i>All other diseases</i> ..	107.81	343.69	191.75	123.49
(12)	<i>All diseases</i> ..	244.33	868.29	771.15	617.81
(13)	<i>Accidents, Poisoning and Violence (Non-battle injuries)</i>				
	Burns and scalds ..	..	..	..	2.00
	Other local injuries ..	16.88	41.09	47.72	40.55
	Total ..	16.88	41.09	47.72	42.56
(14)	<i>Accidents, Poisoning and violence (Battle injuries)</i>				
	Gunshot wounds ..	..	0.05	0.13	..
	Shell wounds ..	..	..	..	..
	Total ..	..	0.05	0.13	..
(15)	<i>All cases</i> ..	261.21	909.43	819.00	660.36
(16)	<i>Average daily sick</i> ..	27.65	32.92	30.66	27.11
(17)	<i>Deaths</i> ..	1.05	2.36	1.55	1.96

TABLE 14

Relative morbidity rates: Ceylonese Other Ranks: SEAC (Ceylon Army Command).

Diseases	1942 (Sept. to Dec.)	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	..	0.00	0.01	0.02
Cholera ..	..	..	0.02	..
Dengue ..	0.88	0.15	0.23	0.13
Diphtheria ..	..	0.01	0.01	0.02
Dysentery ..	0.45	3.01	2.45	1.87
Enteric group of fevers ..	0.23	0.02	0.04	..
Infective hepatitis (Jaundice) ..	0.68	0.37	0.65	0.83
Malaria ..	8.90	24.75	18.68	17.64
Major septic diseases ..	..	..	0.21	0.17
Minor septic diseases ..	5.04	3.46	1.74	2.19
Mumps ..	3.78	0.88	0.73	2.01
Oriental sore ..	..	0.00	0.01	..
Pediculosis ..	..	..	0.01	..
Plague ..	..	..	0.02	..
Sandfly fever ..	..	0.05	0.17	..
Scabies ..	0.96	1.22	1.74	2.98
Smallpox ..	..	..	..	0.02
Tuberculosis ..	0.08	0.03	0.12	0.15
Typhus fever ..	..	0.01	0.01	0.01
Trachoma ..	..	0.00	..	0.03
Veneral diseases ..	3.20	2.80	3.43	5.42
Total ..	23.81	36.77	30.25	33.50
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri ..	..	..	..	..
Scurvy ..	..	..	..	0.27
Total ..	..	..	..	0.27
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia ..	..	..	..	0.34
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	0.33	0.30	0.52	0.41
(5) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases ..	..	..	2.28	3.19
Eye diseases other than trachoma ..	1.54	1.77	2.14	3.16
Total ..	1.54	1.77	4.42	6.36
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	..	0.02	..	0.05

TABLE 14—(Contd.)

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
	Other circulatory diseases	..	..	0.93	0.10
	Total .. ..	..	0.02	0.93	0.16
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	13.56	9.43	11.61	13.10
	Tonsillitis ..	1.13	0.53	0.48	1.25
	Pharyngitis ..	0.30	0.10	..	..
	Influenza ..	5.95	3.27	1.42	1.58
	Pneumonia ..	..	..	..	0.50
	Other respiratory diseases	..	..	4.08	4.15
	Total	20.95	13.32	17.59	20.57
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	5.09	3.52	3.29	3.05
	Other digestive diseases	4.16	4.66	5.51	6.26
	Total	9.25	8.19	8.80	9.31
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	..	..	3.47	3.78
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever .. ..	..	..	9.09	5.31
	PUO .. ..	..	0.05	0.06	..
	Total .. ..	..	0.05	9.15	5.31
(11)	<i>All other diseases</i> ..	44.10	39.58	24.86	19.99
(12)	<i>All diseases</i>	100.00	100.00	100.00	100.00

TABLE 15

Relative casualty rates: Ceylonese Other Ranks: SEAC (Ceylon Army Command).

Specialist groups		1942	1943	1944	1945
(1)	Infective and parasitic diseases	22.26	35.11	28.49	31.34
(2)	Allergic, endocrine system, metabolic and nutritional diseases ..	..	..	..	0.25
(3)	Diseases of the blood and blood forming organs ..	..	..	..	0.32
(4)	Mental, psychoneurotic and personality disorders	0.31	0.29	0.49	0.38
(5)	Diseases of the nervous system and sense organs	1.44	1.69	4.16	5.95

TABLE 15—(Contd.)

Specialist groups		1942	1943	1944	1945
(6)	Diseases of the circulatory system .. ..	..	0·01	0·88	0·15
(7)	Diseases of the respiratory system	19·60	12·72	16·56	19·23
(8)	Diseases of the digestive system	8·66	7·82	8·29	8·72
(9)	Diseases of the skin and cellular tissue ..	..	..	3·27	3·54
(10)	Symptoms, senility and ill-defined conditions ..	..	0·05	8·61	4·97
(11)	All other diseases ..	41·27	37·79	23·41	18·70
(12)	All diseases ..	93·54	95·48	94·16	93·56
(13)	Non-battle injuries ..	6·46	4·52	5·83	6·44
(14)	Battle injuries ..	..	0·00	0·02	..
(15)	All cases	100·00	100·00	100·00	100·00

Section VIII

CEYLONESE OFFICERS

The incidence rates from individual causes and from all causes among the Ceylonese Officers were generally one-third to half of the corresponding rates for Ceylonese Other Ranks. These rates from diseases only were 251·7 per 1,000 in 1943; 386·8 in 1944 and 306·1 in 1945 and those from all causes were 294·7; 444·3 and 337·5 respectively (Table 16). They are about the same as for Indian Officers. It shows that the standard of health of the Ceylonese Officers was better than their Other Ranks.

As between the various causes of hospital admissions, malaria registered the highest incidence rates among the Ceylonese Officers also but the level of these rates every year was lower than the other rank rates. In 1943, hospital admissions at a rate of 62·9 per 1,000 were caused by malaria. This rate is only 29 per cent. of the corresponding rate for the other ranks. In 1944, a rate of 57·4 was recorded from malaria which was 39 per cent. of the other ranks' incidence and in 1945 Officers suffered from it at a rate (45·5) which was only 41 per cent. of the other rank rate. These rates in themselves show a falling incidence from year to year. The extent of the fall in no year is significant statistically. In Table 17 the relative rates of malaria in the three years are also given which indicate that malaria was responsible for 25 per cent. of all sick admissions in 1943 and for about 15 per cent. only in each of the two succeeding years. These rates do not show the wide variations from the corresponding figures for the other ranks which was observed in their absolute incidence rates. On the contrary, they show a remarkable resemblance in the two categories of troops, for relative rate of the other ranks in 1943 was also 25 per cent. (Table 14) and those in 1944 and 1945 were 18·7 per cent. and 17·6 per cent. respectively. These facts re-emphasise the similarity in the relative intensity of a cause among all causes between various categories of troops and the dissimilarity of their absolute incidence among them. The low rates of absolute incidence from malaria among the Ceylonese were attributed to the natural immunity of these troops. It seems to be borne out also by the fact that these rates for Ceylonese officers were always lower than the Indian rate from malaria even in 1945—a year in which the morbidity from it was brought to its lowest possible point in the whole of the South East Asia.

As was the case with Ceylonese other ranks, common cold came next to malaria only in terms of relative rates for Ceylonese officers also (Table 17), but the absolute rates of incidence from it were very much lower. In 1943, the rate (14·9 per 1,000) was less than 1/5 of the corresponding rate for the Ceylonese other ranks, in 1944 it (22·0) was less than 1/4 and in 1945 (14·1) about 1/6th. The rate in 1944 was 50 per cent. higher than the rate in each of the other two years i.e. 1943 and 1945, when it was about even. A similar tendency was observed in the case of the other ranks also. For them, the rate in 1944 was about 11 per cent. higher than that in each of the other two years.

Jointly, these facts help to infer that the year 1944 was particularly severe on the Ceylonese troops, with regard to their morbidity from common cold.

Dysentery did not at any time cause higher rates of morbidity than 6·8 per 1,000, among the Ceylonese officers (Table 16). The relevant rates in the three years were 5·0 in 1943, 6·8 in 1944 and 4·7 in 1945. The rate in 1943 was less than one-fifth of the corresponding rate for other ranks; about one-third in 1944 and less than half in 1945. In comparison, diarrhoea was responsible for higher admission rates each year. The relevant rates were 11·6 in 1943, 10·1 in 1944 and 12·6 in 1945. In terms of relative rates its importance among diseases fluctuated between 2·6 to 4·6 per cent. When compared with diarrhoea incidence for other troops in Ceylon the rates for Ceylonese officers are remarkably low. From among the major causes, similar low level of incidence was also recorded each year in respect of venereal, eye and minor septic diseases and scabies. Influenza was prevalent among the Ceylonese officers at a rate of 5 per 1,000 in 1943. This incidence increased suddenly to 11·8 per 1,000 in 1944 (perhaps in association with an increase in common cold cases referred to already) but came down to a rate of 9·4 per 1,000 by 1945. Influenza was not such a serious problem with any other category of troops.

Skin and ear, nose and throat diseases were also responsible for comparatively higher incidence among the Ceylonese officers. Information is available for 1944 and 1945 only (Table 16). Skin diseases were prevalent at a rate of 18·6 per 1,000 among the Ceylonese officers in 1944 and at 20·4 per 1,000 in 1945. There was thus an increase of 10 per cent. Skin diseases were responsible for 4·8 per cent. of sick admissions among the Ceylonese officers in 1944 (against 3·5 per cent. of their Other Ranks) and for 6·7 per cent. admissions in 1945 (against 3·8 per cent. of the Other Ranks).

An increasing incidence of ear, nose and throat diseases was also reported among the Ceylonese officers. The rate of absolute incidence was 13·5 in 1944 and 17·3 in 1945. Similar was the case with the other ranks whose rates in 1944 and 1945 were 17·6 and 19·7 per 1,000 respectively.

Ceylonese officers did not quite escape falling sick from such diseases as cerebrospinal fever, dengue, hepatitis, mumps, scabies, small-pox and tuberculosis. A few cases were recorded among them each year from many of these diseases. It will be seen from Table 16, however, that enteric group of fevers, oriental sore, poliomyelitis, sandfly fever and typhus are conspicuous by their absence in case of Ceylonese officers.

The incidence rates of injuries due to non-enemy action were 43 in 1943, 57 in 1944 and 30 in 1945. Among all causes they accounted for about 15 per cent. of all admissions in 1943, 13 per cent. in 1944 and 9 per cent. in 1945.

The rate of mortality of the Ceylonese officers was between one and two per 1,000 during 1944 and 1945. The causes of mortality are not available. No deaths were reported in 1943.

Rates of average daily sick per year for Ceylonese officers also confirm what has already been stated that these troops, in general, suffered from lower morbidity. The daily number in hospital was 3.7 per 1,000 in 1943, 4.3 per 1,000 in 1944 and 10.7 per 1,000 in 1945. It will be seen that these figures show an increase of about three times by 1945 over that in 1943, still they compare favourably against the corresponding figures for all other troops, in Ceylon.

TABLE 16

Admissions to Hospitals—Annual rates per 1,000 strength: Ceylonese officers: SEAC (Ceylon Army Command).

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	1.80	1.66	..	..
	Dengue	1.80	3.31	5.07	3.14
	Dysentery	3.60	4.97	6.76	4.71
	Infective hepatitis (Jaundice) ..	..	..	8.45	4.71
	Malaria	3.60	62.91	57.43	45.53
	Minor septic diseases ..	..	..	10.13	4.71
	Mumps .. ..	..	..	1.69	1.57
	Scabies .. ..	..	..	..	7.85
	Tuberculosis .. ..	..	..	3.38	1.57
	Venereal diseases ..	..	8.28	..	6.28
	Total	10.79	81.13	92.90	80.06
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Beri beri .. ..	..	..	..	..
	Scurvy .. ..	..	..	..	4.71
	Total .. ..	..	..	..	4.71
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia .. ..	..	..	..	3.14
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	..	..	1.69	..
(5)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases .. ..	..	..	13.51	17.27
	Eye diseases other than trachoma .. ..	..	6.62	8.45	9.42
	Total .. ..	..	6.62	21.96	26.69

TABLE 16—(Contd.)

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	..	..	..	..
	Other circulatory diseases ..	..	..	3.38	1.57
	Total ..	..	..	3.38	1.57
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	..	14.90	21.96	14.13
	Tonsillitis ..	..	9.93	1.69	4.71
	Influenza ..	..	4.97	11.82	9.42
	Other respiratory diseases ..	..	..	8.45	9.42
	Total ..	..	29.80	43.92	37.68
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	..	11.59	10.13	12.56
	Other digestive diseases ..	1.80	21.52	38.85	21.98
	Total ..	1.80	33.11	48.99	34.54
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	..	..	18.58	20.41
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	35.47	14.13
	PUO ..	..	..	..	..
	Total ..	..	..	35.47	14.13
(11)	<i>All other diseases</i> ..	8.99	100.99	119.99	83.20
(12)	<i>All diseases</i> ..	21.58	251.66	386.82	306.12
(13)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Burns and scalds ..	..	..	..	..
	Other local injuries ..	8.99	43.05	57.43	29.83
	Total ..	8.99	43.05	57.43	29.83
(14)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Gunshot wounds ..	..	..	..	1.57
	Shell wounds ..	..	..	..	..
	Total ..	..	..	..	1.57
(15)	<i>All cases</i> ..	30.57	294.70	444.26	337.52
(16)	<i>Average daily sick</i> ..	2.2	3.7	4.3	10.7
(17)	<i>Deaths</i> ..	..	..	1.69	1.57

TABLE 17

Relative morbidity rates: Ceylonese Officers: SEAC (Ceylon Army Command).

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	8.33	0.66	..	..
	Dengue	8.33	1.32	1.31	1.03
	Dysentery	16.67	1.97	1.75	1.54
	Infective hepatitis (Jaundice) ..	..	..	2.18	1.54
	Malaria	16.67	25.00	14.85	14.87
	Minor septic diseases ..	..	..	2.62	1.54
	Mumps .. ..	..	..	0.44	0.51
	Scabies .. ..	..	..	..	2.56
	Tuberculosis .. ..	..	..	0.87	0.51
	Venereal diseases ..	..	3.29	..	2.05
	Total	50.00	32.24	24.01	26.16
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Beri beri .. ..	..	..	..	..
	Scurvy .. ..	..	..	..	1.54
	Total .. ..	..	..	..	1.54
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia .. ..	..	..	..	1.03
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	..	..	0.44	..
(5)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases ..	..	..	3.49	5.64
	Eye diseases other than trachoma .. ..	..	2.63	2.18	3.08
	Total .. ..	..	2.63	5.68	8.72
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	..	..	..	..
	Other circulatory diseases ..	..	..	0.87	0.51
	Total .. ..	..	..	0.87	0.51
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold .. ..	..	5.92	5.68	4.61
	Tonsillitis .. ..	..	3.95	0.44	1.54
	Influenza .. ..	..	1.97	3.06	3.08
	Other respiratory diseases ..	..	..	2.18	3.08
	Total .. ..	..	11.84	11.36	12.30

TABLE 17—(Contd.)

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea .. ..	..	4.60	2.62	4.10
	Other digestive diseases	8.33	8.55	10.04	7.18
	Total	8.33	13.16	12.66	11.28
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	..	..	4.80	6.67
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever .. ..	..	..	9.17	4.61
	PUO .. ..	..	..	..	..
	Total .. ..	..	..	9.17	4.61
(11)	<i>All other diseases</i> ..	41.67	40.13	31.00	27.18
(12)	<i>All diseases</i>	100.00	100.00	100.00	100.00

Section IX

A.T.S. (CEYLONESE)

As the number of ATS (Ceylonese) was very small (not a representative sample), it seems that a study of their rates of absolute incidence from various diseases would be biased. These rates are, however, given side by side with their relative rates in Table 18.

In all, there were 145 hospital admissions recorded from among these troops during 1944 and 40 in 1945. Figures for other years are not available. Out of the 145 admissions in 1944, ten were from injuries not due to enemy action. No admissions from them were reported during 1945 (Table 18). Of the remaining 135 admissions in 1944, the largest percentage, 8.89 per cent. were due to ear, nose and throat diseases. It was observed in the case of other Ceylonese troops also that these diseases were responsible for rather high incidence. The relative share of these diseases in the 40 admissions of 1945 was 5 per cent.

Next to ear, nose and throat diseases, dysentery was a cause of relatively large hospital admissions in 1944, the rate being 3.7 per cent. of all cases. On a comparison with the corresponding figures for Ceylonese officers and other ranks, it will be seen that the relative share of dysentery in diseases was higher for the ATS(C) than for any of the other two.

Malaria caused only 2.96 per cent. of all admissions in 1944 but reached the height of 7.5 per cent. in 1945. Actual cases each year were so few that these percentages should not be taken to mean a real change. Neither does a comparison with other categories seem appropriate.

Dengue seems to have increased in its incidence as well as its relative position from 1944 to 1945 among the ATS(C). It was responsible for 2.2 per cent. of hospital admissions in 1944 and for 12.5 per cent. in 1945. Its absolute rates of incidence during the two years were 11 and 22 respectively.

Common cold also seems to have affected an increase. Its relative rates were 1.5 per cent. in 1944 and 5.0 per cent. in 1945.

Venereal and minor septic diseases and tonsillitis, each, caused a relative admission rate of 1.48 per cent. in 1944, among the ATS(C). From tonsillitis alone hospital admissions were reported in 1945, at a rate of 2.5 per cent.

A few cases of mental diseases were reported during 1945, the relative rate being 2.5 per cent.

The rate of skin diseases was 2.96 per cent. in 1944.

Of the remaining specific diseases, mumps, scabies, diarrhoea and eye diseases were responsible, each, for one case (a rate of 0.74 per cent.) during 1944 only.

No deaths were reported among the ATS(C) during any of these two years.

The average number daily hospitalised, during the two years, was 1.7 per cent. in 1944 and 0.3 per cent. in 1945.

TABLE 18

Absolute and relative morbidity rates: A.T.S. (Ceylonese): SEAC (Ceylon Army Command).

Diseases	1944			1945		
	(March to December)			(January to February)		
	Actual Number	Relative Rate	Rate per 1,000	Actual Number	Relative Rate	Rate per 1,000
(1) <i>Infective and Parasitic diseases</i>						
Dengue	3	2.22	10.99	5	12.50	21.37
Dysentery	5	3.70	18.31	..	..	..
Malaria	4	2.96	14.65	3	7.50	12.82
Minor septic diseases ..	2	1.48	7.33	..	..	..
Mumps	1	0.74	3.66	..	..	..
Scabies	1	0.74	3.66	..	..	..
Venereal diseases ..	2	1.48	7.33	..	..	..
Total	18	13.33	65.93	8	20.00	34.18
(2) <i>Mental Psychoneurotic and Personality disorders</i>						
Mental diseases ..	..	..	..	1	2.50	4.27
(3) <i>Diseases of the Nervous system and sense organs</i>						
ENT diseases ..	12	8.89	43.96	2	5.00	8.55
Eye diseases other than trachoma ..	1	0.74	3.66	..	..	..
Total	13	9.63	47.62	2	5.00	8.55
(4) <i>Diseases of the Circulatory system</i>						
Rheumatic fever ..	..	..	..	..	..	..
Other circulatory diseases	1	0.74	3.66	2	5.00	8.55
Total	1	0.74	3.66	2	5.00	8.55
(5) <i>Diseases of the Respiratory system</i>						
Common cold ..	2	1.48	7.33	2	5.00	8.55
Tonsillitis	2	1.48	7.33	1	2.50	4.27
Other respiratory diseases	5	3.70	18.31	2	5.00	8.55
Total	9	6.66	33.97	5	12.50	21.37
(6) <i>Diseases of the Digestive system</i>						
Diarrhoea	1	0.74	3.66	..	..	..
Other digestive diseases	11	8.15	40.29	5	12.50	21.37
Total	12	8.89	43.96	5	12.50	21.37
(7) <i>Diseases of the Skin and Cellular tissue</i>						
Skin diseases ..	4	2.96	14.65	..	..	..
(8) <i>Symptoms, Senility and Ill-defined conditions</i>						
NYD fever	7	5.18	25.64	..	..	..
Total	7	5.18	25.64	..	..	..

TABLE 18—(Contd.)

Diseases	1944			1945		
	(March to December)			(January to February)		
	Actual Num- ber	Rela- tive Rate	Rate per 1,000	Actual Num- ber	Rela- tive Rate	Rate per 1,000
(9) <i>All other diseases</i> ..	71	52.59	260.07	17	42.50	72.65
(10) <i>All diseases</i> ..	135	100.00	494.50	40	100.00	170.94
(11) <i>Accidents, Poisoning and violence (non-battle injuries)</i>						
<i>Local injuries</i> ..	10		36.63	..		..
(12) <i>All cases</i> ..	145		531.13	40		170.94
(13) <i>Average daily sick</i> ..	4.74		17.36	0.67		2.86
(14) <i>Deaths</i> ..	..		..	..		..

Section X

ALL CEYLONESE TROOPS

Since the Ceylonese other ranks constituted 96 per cent. of the total strength of the Ceylonese troops the morbidity history of the latter is not very much different from that of the former. This is borne out clearly by figures given in Tables 13, 15 and 19 to 24. It will be seen from an examination of Table 22 that the order followed by diseases in respect of their absolute incidence is exactly the same here as was discussed for the Ceylonese other ranks i.e. malaria, common cold, venereal diseases, diarrhoea, minor septic diseases, dysentery, influenza, scabies and mumps.

Another fact noticeable in Table 22 is the variation in magnitude. For instance, the total Ceylonese rates from malaria were 211 per 1,000 in 1943, 140 in 1944 and 106 in 1945. The corresponding rates for the Ceylonese other ranks, as has been stated already, were 215 in 1943, 144 in 1944 and 109 in 1945. A similar observation could be made about every other disease also although the difference in respect of them was generally of a lower magnitude.

The higher rate for the Ceylonese other ranks against a lower rate for a bigger total of troops, including the other ranks, admits of an easy explanation. The Ceylonese troops, other than the Ceylonese other ranks, contributed to the grand total at a rate lower than that of the other ranks. The morbidity rates registered by Ceylonese officers and the ATS(C) were lower than those registered by the other ranks from each of the diseases and from all causes. In other words, Ceylonese officers and ATS(C) suffered less from diseases than other ranks.

Similar difference can generally be seen in respect of the relative rates of diseases among both these categories of troops. Cases of divergence, when the relative rates for all Ceylonese troops were not lower than these for the Ceylonese other ranks, are few. For instance, relative rates from dysentery were exactly the same for both during 1944 and 1945. So also were the rates from mumps in 1944. This indicates, that the difference in hospital admissions due, for example, to dysentery between all Ceylonese troops and Ceylonese other ranks, in a particular year, was proportional to the difference in the total admissions due to all diseases between them. Another variant of this difference occurred when the relative rates for all Ceylonese troops from some causes were higher than the corresponding rates for Ceylonese other ranks. For instance the relative rate from venereal diseases in 1943 for all Ceylonese troops was 2.81 per cent. whereas the rate for Ceylonese other ranks was 2.80 per cent. the relative rate from influenza in 1944 for the former was 1.43 per cent. and for the latter 1.42 per cent. and the relative rates from diarrhoea in 1943 and 1945 for all Ceylonese troops were 3.53 per cent. and 3.06 per cent. respectively, whereas these rates for Ceylonese other ranks were 3.52 per cent. and 3.05 per cent. respectively. This indicates that the difference in the admissions due to a specific disease between all Ceylonese troops and Ceylonese other ranks was of a greater proportion than that

in case of all diseases. These by themselves have no bearing on the absolute incidence from these diseases. As has been stated earlier, absolute rates of incidence from individual and all diseases consistently show, that the inclusion among the Ceylonese other ranks of other Ceylonese troops has the effect of reducing their absolute morbidity rates by a percentage ranging upto 3 per cent.

Ceylonese troops in Ceylon suffered a total casualty rate of 89 per cent. in 1943; 81 per cent. in 1944 and 65 per cent. in 1945. The corresponding rate for the four months of 1942 was as heavy as 25 per cent. These rates show a declining total incidence from year to year.

In terms of average number daily sick, each year, the figures were 2·7 per cent. in the four months of 1942, 3·2 per cent. in 1943, 3·0 per cent. in 1944 and 2·6 per cent. in 1945. It can, therefore, be concluded that there occurred a general improvement also in the average number of Ceylonese daily admitted to hospitals from 1943 to 1945.

TABLE 19

Admissions to Hospitals—Annual rates per 1,000 strength: Ceylonese troops (all types less ATS(C)): SEAC (Ceylon Army Command).

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	0·06	0·09	0·04	0·12
	Cholera .. ..	..	..	0·13	..
	Dengue	2·14	1·35	1·84	0·87
	Diphtheria .. ..	..	0·09	0·04	0·12
	Dysentery	1·19	25·53	18·57	11·40
	Enteric group of fevers ..	0·54	0·13	0·29	..
	Infective hepatitis (Jaundice)	1·61	3·16	5·07	5·10
	Malaria	21·15	210·76	141·92	107·33
	Major septic diseases ..	..	..	1·55	1·04
	Minor septic diseases ..	11·91	29·23	13·37	13·31
	Mumps	7·98	7·40	5·53	12·11
	Oriental sore .. ..	..	0·04	0·08	..
	Pediculosis .. ..	..	..	0·04	..
	Plague .. ..	..	..	0·13	..
	Sandfly fever .. ..	..	0·41	1·30	..
	Scabies	2·26	10·29	13·12	18·12
	Smallpox .. ..	..	..	..	0·12
	Tuberculosis	0·18	0·27	0·96	0·95
	Trachoma .. ..	..	0·04	..	0·17
	Typhus fever .. ..	..	0·09	0·04	0·04
	Venereal diseases	7·56	23·91	25·78	32·76
	Total	56·58	312·81	229·84	203·59

TABLE 19—(Contd.)

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Beri beri .. ..	..	..	..
	Scurvy .. ..	..	..	..	1.74
	Total .. ..	..	..	..	1.74
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia .. ..	..	..	..	2.16
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	0.77	2.53	3.94	2.45
(5)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases ..	..	..	17.48	16.66
	Eye diseases other than trachoma	3.63	15.16	16.31	19.28
	Total	3.63	15.16	33.79	38.94
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	..	0.13	..	0.33
	Other circulatory diseases	..	..	7.08	0.66
	Total .. ..	..	0.13	7.08	0.99
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	32.05	80.03	87.83	79.17
	Tonsillitis	2.68	4.74	3.65	7.63
	Pharyngitis	0.71	0.81	..	..
	Influenza	14.06	27.74	10.94	9.75
	Pneumonia .. ..	..	..	..	2.99
	Other respiratory diseases	..	..	30.90	25.22
	Total	49.50	113.32	133.32	124.75
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	12.03	30.09	25.03	18.70
	Other digestive diseases	9.89	39.97	42.39	38.24
	Total	21.92	70.06	67.42	56.94
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	..	..	26.58	23.27
(10)	<i>Symptoms, Senility and Ill- defined conditions</i>				
	NYD fever .. ..	..	..	69.22	32.31
	PUO .. ..	..	0.41	0.46	..
	Total .. ..	..	0.41	69.68	32.31
(11)	<i>All other diseases</i>	104.54	337.08	189.96	122.43

TABLE 19—(Contd.).

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
(12)	All diseases	236.95	851.49	761.61	609.57
(13)	Accidents, Poisoning and violence (non-battle injuries)				
	Burns and scalds				1.95
	Other local injuries	16.62	41.14	47.96	40.27
	Total	16.62	41.14	47.96	42.22
(14)	Accidents, Poisoning and violence (battle injuries)				
	Gunshot wounds		0.04	0.13	0.04
	Shell wounds				
	Total		0.04	0.13	0.04
(15)	All cases	253.57	892.68	809.70	651.83
(16)	Average daily sick				
(17)	Deaths	1.01	2.30	1.55	1.95

TABLE 20

Relative morbidity rates: Ceylonese troops (all types less ATS(C)): SEAC (Ceylon Army Command).

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
(1)	Infective and Parasitic diseases				
	Cerebrospinal fever	0.02	0.01	0.00	0.02
	Cholera			0.02	
	Dengue	0.90	0.16	0.24	0.14
	Diphtheria		0.01	0.00	0.02
	Dysentery	0.50	3.00	2.44	1.87
	Enteric group of fevers	0.22	0.02	0.04	
	Infective hepatitis (Jaundice)	0.68	0.37	0.67	0.84
	Malaria	8.92	24.75	18.63	17.61
	Major septic diseases			0.20	0.17
	Minor septic diseases	5.03	3.43	1.76	2.18
	Mumps	3.37	0.87	0.73	1.99
	Oriental sore		0.00	0.01	
	Pediculosis			0.00	
	Plague			0.02	
	Sandfly fever		0.05	0.17	
	Scabies	0.95	1.21	1.72	2.97
	Smallpox				0.02

TABLE 20—(Contd.)

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
	Tuberculosis ..	0.07	0.03	0.13	0.16
	Trachoma ..	..	0.00	..	0.03
	Typhus fever ..	..	0.01	0.00	0.01
	Venereal diseases ..	3.19	2.81	3.38	5.37
	Total ..	23.89	36.73	30.18	33.40
(2)	<i>Allergic, endocrine system, Metabolic and Nutritional diseases</i>				
	Beri beri ..	..	..	..	..
	Scurvy ..	..	..	..	0.29
	Total ..	..	..	..	0.29
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia ..	..	..	..	0.35
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	0.33	0.30	0.52	0.40
(5)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases ..	..	..	2.30	3.22
	Eye diseases other than trachoma ..	1.53	1.78	2.14	3.16
	Total ..	1.53	1.78	4.44	6.38
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	..	0.02	..	0.05
	Other circulatory diseases ..	..	..	0.93	0.11
	Total ..	..	0.02	0.93	0.16
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	13.52	9.40	11.53	12.99
	Tonsillitis ..	1.13	0.56	0.48	1.25
	Pharyngitis ..	0.30	0.09	..	..
	Influenza ..	5.93	3.26	1.44	1.60
	Pneumonia ..	..	..	..	0.49
	Other respiratory diseases ..	..	..	4.06	4.14
	Total ..	20.88	13.31	17.50	20.47
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	5.08	3.53	3.29	3.07
	Other digestive diseases ..	4.17	4.69	5.56	6.27
	Total ..	9.25	8.23	8.85	9.34
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	..	..	3.49	3.82

TABLE 20—(Contd.)

Diseases	1942 (Sept. to Dec.)	1943	1944	1945
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever .. ..	..	..	9.09	5.30
PUO .. ..	..	0.05	0.06	..
Total .. ..	..	0.05	9.15	5.30
(11) All other diseases ..	44.12	39.59	24.94	20.08
(12) All diseases	100.00	100.00	100.00	100.00

TABLE 21

Relative casualty rates: Ceylonese troops all types (less ATS): SEAC (Ceylon Army Command).

Specialist groups	1942 (Sept. to Dec.)	1943	1944	1945
(1) Infective and parasitic diseases	22.32	35.04	28.28	31.23
(2) Allergic, endocrine system, metabolic and nutritional diseases ..	..	..	..	0.27
(3) Diseases of the blood and blood forming organs ..	..	..	..	0.33
(4) Mental, psychoneurotic and personality disorders	0.30	0.28	0.49	0.37
(5) Diseases of the nervous system and sense organs ..	1.43	1.70	4.17	5.97
(6) Diseases of the circulatory system .. ..	..	0.01	0.87	0.15
(7) Diseases of the respiratory system	19.52	12.70	16.57	19.14
(8) Diseases of the digestive system	8.64	7.85	8.33	8.74
(9) Diseases of the skin and cellular tissue .. ..	..	..	3.28	3.57
(10) Symptoms, senility and ill-defined conditions ..	..	0.04	8.61	4.96
(11) All other diseases	41.24	37.76	23.46	18.78
(12) All diseases	93.45	95.39	90.06	93.52
(13) Non-battle injuries	6.55	4.61	5.92	6.48
(14) Battle injuries .. ..	..	0.00	0.02	0.01
(15) All cases	100.00	100.00	100.00	100.00

TABLE 22

Admissions to Hospitals—Annual rates per 1,000 strength: Ceylonese troops (all types): SEAC (Ceylon Army Command).

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	0.06	0.09	0.04	0.12
	Cholera .. ..	..	..	0.12	..
	Dengue	2.14	1.35	1.95	1.07
	Diphtheria .. ..	..	0.09	0.04	0.12
	Dysentery	1.19	25.53	18.57	11.29
	Enteric group of fevers ..	0.54	0.13	0.29	..
	Infective hepatitis (Jaundice) ..	1.61	3.16	5.01	5.05
	Malaria	21.15	210.76	140.48	106.42
	Major septic diseases ..	..	..	1.53	1.03
	Minor septic diseases ..	11.91	29.23	13.31	13.18
	Mumps	7.98	7.40	5.51	11.99
	Oriental sore .. ..	..	0.04	0.08	..
	Pediculosis .. ..	..	..	0.04	..
	Plague .. ..	..	..	0.12	..
	Sandfly fever .. ..	..	0.41	1.28	..
	Scabies	2.26	10.29	13.01	17.95
	Smallpox .. ..	..	..	..	0.12
	Tuberculosis	0.18	0.27	0.95	0.94
	Trachoma .. ..	..	0.04	..	0.16
	Typhus fever .. ..	..	0.09	0.04	0.04
	Veneral diseases	7.56	23.91	25.57	32.45
	Total	88.63	392.84	314.90	280.46
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Beri beri .. ..	..	..	..	..
	Scurvy .. ..	..	..	..	1.72
	Total .. ..	..	..	..	1.72
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia .. ..	..	..	..	2.14
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases	0.77	2.53	3.90	2.46
(5)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases .. ..	..	..	17.78	19.55
	Eye diseases other than trachoma	3.63	15.16	16.17	19.10
	Total	3.63	15.16	33.95	38.65

TABLE 22—(Contd.).

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	..	0.13	..	0.33
	Other circulatory diseases ..	..	..	7.05	0.74
	Total ..	..	0.13	7.05	1.07
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	32.05	80.03	86.92	78.49
	Tonsillitis ..	2.68	4.74	3.69	7.60
	Pharyngitis ..	0.71	0.81	..	..
	Influenza ..	14.06	27.74	10.82	9.65
	Pneumonia ..	..	..	..	2.96
	Other respiratory diseases ..	..	..	30.76	25.05
	Total ..	49.50	113.32	132.18	123.75
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	12.03	30.09	24.79	18.52
	Other digestive diseases ..	9.89	39.97	42.36	38.08
	Total ..	21.92	70.06	67.15	56.60
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	..	..	26.45	23.04
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	68.72	32.00
	PUO ..	..	0.41	0.46	..
	Total ..	..	0.41	69.18	32.00
(11)	<i>All other diseases</i> ..	104.54	337.08	190.75	121.95
(12)	<i>All diseases</i> ..	236.95	851.49	758.59	605.36
(13)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Burns and scalds ..	..	..	..	1.93
	Other local injuries ..	16.62	41.14	47.83	39.88
	Total ..	16.62	41.14	47.83	41.81
(14)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Gunshot wounds ..	..	0.04	0.12	0.04
	Shell wounds ..	..	..	..	..
	Total ..	..	0.04	0.12	0.04
(15)	<i>All cases</i> ..	253.57	892.68	806.55	647.21
(16)	<i>Average daily sick</i> ..	26.81	32.12	29.86	26.44
(17)	<i>Deaths</i> ..	1.01	2.30	1.53	1.93

TABLE 23

Relative morbidity rates: Ceylonese troops (all types): SEAC (Ceylon Army Command).

Diseases		1942 (Sept. to Dec.)	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	0.02	0.01	0.00	0.02
	Cholera .. ..	..	..	0.02	..
	Dengue	0.90	0.16	0.26	0.18
	Diphtheria .. ..	..	0.01	0.00	0.02
	Dysentery	0.50	3.00	2.45	1.87
	Enteric group of fevers ..	0.23	0.02	0.04	..
	Infective hepatitis (Jaundice) ..	0.68	0.37	0.66	0.83
	Malaria	8.92	24.75	18.52	17.58
	Major septic diseases ..	..	..	0.20	0.17
	Minor septic diseases ..	5.03	3.43	1.75	2.18
	Mumps	3.37	0.87	0.73	1.98
	Oriental sore .. ..	..	0.00	0.01	..
	Pediculosis .. ..	..	..	0.00	..
	Plague .. ..	..	..	0.02	..
	Sandfly fever .. ..	..	0.05	0.17	..
	Scabies	0.95	1.21	1.72	2.96
	Smallpox .. ..	..	..	..	0.02
	Tuberculosis	0.07	0.03	0.13	0.16
	Trachoma .. ..	..	0.00	..	0.03
	Typhus fever .. ..	..	0.01	0.00	0.01
	Venereal diseases	3.19	2.81	3.37	5.36
	Total	23.89	36.73	30.05	33.36
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Beri beri .. ..	..	..	..	..
	Scurvy .. ..	..	..	..	0.28
	Total .. ..	..	..	..	0.28
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia .. ..	..	..	..	0.35
(4)	<i>Mental Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	0.33	0.30	0.51	0.41
(5)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases .. ..	..	..	2.34	3.23
	Eye diseases other than trachoma	1.53	1.78	2.13	3.15
	Total	1.53	1.78	4.47	6.38

TABLE 23—(Contd.)

Diseases	1942 (Sept. to Dec.)	1943	1944	1945
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	..	0.02	..	0.05
Other circulatory diseases ..	..	..	0.93	0.12
Total ..	..	0.02	0.93	0.18
(7) <i>Diseases of the Respiratory system</i>				
Common cold ..	13.52	9.40	11.46	12.97
Tonsillitis ..	1.13	0.56	0.49	1.25
Pharyngitis ..	0.30	0.09	..	..
Influenza ..	5.93	3.26	1.43	1.59
Pneumonia ..	..	..	..	0.49
Other respiratory diseases ..	..	..	4.05	4.14
Total ..	20.88	13.31	17.43	20.45
(8) <i>Diseases of the Digestive system</i>				
Diarrhoea ..	5.08	3.53	3.27	3.06
Other digestive diseases ..	4.17	4.69	5.58	6.29
Total ..	9.25	8.23	8.85	9.35
(9) <i>Diseases of the Skin and Cellular tissue</i>				
Skin diseases ..	..	..	3.49	3.81
(10) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever ..	..	..	9.06	5.29
PUO ..	..	0.05	0.06	..
Total ..	..	0.05	9.12	5.29
(11) <i>All other diseases</i> ..	44.12	39.59	25.14	20.14
(12) <i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 24

Relative Casualty rates: Ceylonese troops (all types): SEAC (Ceylon Army Command).

Specialist groups	1942 (Sept. to Dec.)	1943	1944	1945
(1) Infective and parasitic diseases ..	22.32	35.04	28.27	31.20
(2) Allergic, endocrine system, metabolic and nutritional diseases ..	..	..	..	0.27
(3) Diseases of the blood and blood forming organs ..	..	..	..	0.33

TABLE 24—(Contd.).

Specialist groups	1942 (Sept. to Dec.)	1943	1944	1945
(4) Mental, psychoneurotic and personality disorders	0.30	0.28	0.48	0.38
(5) Diseases of the nervous system and sense organs	1.43	1.70	4.21	5.97
(6) Diseases of the circulatory system .. ..	..	0.01	0.87	0.16
(7) Diseases of the respiratory system	19.51	12.70	16.38	19.12
(8) Diseases of the digestive system	8.64	7.85	8.33	8.74
(9) Diseases of the skin and cellular tissue ..	..	..	3.28	3.56
(10) Symptoms, senility and ill-defined conditions ..	..	0.04	8.58	4.94
(11) All other diseases ..	41.23	37.76	23.65	18.84
(12) All diseases ..	93.45	95.39	94.06	93.53
(13) Non-battle injuries ..	6.55	4.61	5.93	6.46
(14) Battle injuries ..	..	0.00	0.01	0.01
(15) All cases ..	100.00	100.00	100.00	100.00

Section XI

BRITISH TROOPS

BRITISH OTHER RANKS (BORS)

For the purpose of this Section, British Troops (officers, other ranks and MNS) attached to British, Indian, Ceylonese or African units are being considered jointly. In matters of health and well-being, the ethnographical difference between BORs attached to different units is bound to be negligible.

Before proceeding with a detailed analysis of the sickness history of the British troops in Ceylon, it would be well to bear in mind certain general factors that affected them. From early 1942, the Royal Air Force (RAF) personnel were posted in Ceylon in ever increasing number and the Royal Navy (RN) was also expanding its establishments there. This threw a great strain on the medical facilities available in Ceylon. Suitable buildings to serve as hospitals and convalescent depots were found with the greatest difficulty. Prior to World War II, only a few thousand Europeans were living in Ceylon, most of them in Colombo or in widely dispersed estates in the hills. In all these places housing and health conditions were exceptionally good for Ceylon. It was not so in respect of those areas to which large number of troops had to be sent during the war.

In Table 25 are set out absolute incidence rates for BORs from various diseases, separately for each of the years from 1942 to 1945, while their relative rates are given in Table 26. It will be seen from these tables that malaria was the most important single cause of morbidity among the BORs also. Its incidence rates in the four years for British other ranks were 278 per 1,000 in 1942, 254 in 1943, 82 in 1944 and 36 in 1945. These rates show a declining incidence from malaria, from year to year. The fall in incidence in 1944 and 1945 was particularly steep. From a figure of 28 out of every 100 British other ranks hospitalised due to malaria in 1942, the corresponding figure in 1945 was about 4 per 100 (1/7 of the incidence in 1942). This reduction was slow in the beginning, for the fall in 1943 was only 8.6 per cent. over the rate in 1942. It was not significant statistically. But the fall in 1944 from the 1943 rate was 67.7 per cent. and was statistically significant. In 1945 it fell by as much as 56.1 per cent. but was not significant. The reduction in the incidence of malaria by 1945 was of such a proportion that in the final year it did not even remain the most important cause of illness among the BORs. Other diseases which caused higher incidence than malaria in that year were skin diseases and venereal diseases. Some idea of the low malaria incidence in 1945 among BORs may be gathered from the fact that Ceylonese recorded a rate which was three times the BORs rate in that year and VCOs and IORs a rate about 86 per cent. higher than that for BORs.

A reference to Table 26 will show that malaria among BORs was responsible for 25.4 per cent. of all their sick admissions to hospitals in 1942, for 31.2 per cent. in 1943, for 13.5 per cent. in 1944 and 6.2 per

cent. in 1945. The increase in the relative rate of 1943 over that of 1942, against a falling absolute rate, indicates that the rate of fall of malaria admissions in 1943 was of a lower order than the rate of fall of all sick admissions in that year.

Monthly incidence (per 1,000 strength) of malaria among the BORs—1942-45.

Month			1942	1943	1944	1945
January	..	..	..	25·13	12·01	4·79
February	..	..	..	18·43	9·33	5·61
March	..	..	..	29·89	6·55	3·14
April	..	..	16·60	45·17	5·49	1·91
May	..	..	37·31	38·24	7·13	2·47
June	..	..	38·52	27·59	5·92	2·61
July	..	..	13·45	13·12	3·96	2·21
August	..	..	11·04	11·42	3·44	1·83
September	..	..	9·75	10·35	6·98	2·09
October	..	..	25·53	9·40	8·86	2·55
November	..	..	32·11	12·81	6·83	3·68
December	..	..	29·74	18·31	7·07	5·42
Annual	..	..	278·13	253·80	81·97	36·00

The above figures show a tendency for higher rates to concentrate round (a) April-May-June and (b) December. The difference in the general level of the magnitude of incidence each year is also noticeable. The average monthly rate in 1942 works out at about 24 per 1,000. The corresponding figures for 1943, 1944 and 1945 were 22, 7 and 3 per 1,000 respectively. Despite these differences, two peaks each year have been indicated in monthly incidence figures, except in 1945. The peak during May-June monsoons is conspicuous by its absence in 1945, although higher rates of incidence seem to be present during January, February and December of that year. Incidence of malaria started to fall to a very low figure from July 1943 and to a still lower proportion from February-March 1944. The fall from a high monthly incidence rate of 45·2 per 1,000 in April 1943 to 1·8 per 1,000 in August 1945 was extraordinary.

A slight reduction in December 1942 was due to the temporary cessation of exercises in the malarious zones and to the fact that one British battalion was removed from a highly malarious area to a malaria-free hill station. The increase again in March 1943, and after, was due to the fact that a British battalion had moved into a malarious area for training. It was noted at this time that an increase in hospital admissions among the civil population of the adjoining area was correlated with an increasing rate of admissions among the troops. Anti-malaria campaign was, therefore, intensified and an upward trend in malaria incidence was thus arrested. It was also reported that the relapse rate from malaria in 1942 was about 30 per cent.

Like the VCOs and IORs, BORs suffered from venereal diseases at very heavy rates of incidence, next only to malaria. In 1945 the venereal diseases rate exceeded the malaria rate by 71 per cent. Unlike

malaria, venereal diseases generally claimed higher incidence among troops whenever they were *not* engaged in extensive jungle exercises. A fall of 44 per cent. was affected in the incidence of venereal diseases in 1943. The rate in 1942 was 112.7 per 1,000, whereas in 1943 it was 62.5 per 1,000. The incidence was reduced by another 15 per cent. in 1944, but again increased to 62 per 1,000 in 1945. In no year was the difference in incidence statistically significant. Admissions due to venereal diseases were about 8 per cent. of all sick admissions during each of the years 1943 and 1944 and slightly more than 10 per cent. during each of the years 1942 and 1945 (Table 26).

Monthly incidence due to venereal diseases among BORs—1942-45.

Month			1942	1943	1944	1945
January	..	..	..	7.3	4.3	3.5
February	..	..	..	5.0	6.8	3.1
March	..	..	..	4.5	4.8	6.7
April	..	..	6.4	6.3	3.6	4.4
May	..	..	15.1	6.8	2.8	5.4
June	..	..	6.1	7.2	3.1	3.2
July	..	..	10.9	4.2	2.9	5.1
August	..	..	13.0	4.0	3.4	7.9
September	..	..	9.8	5.2	4.0	6.0
October	..	..	7.6	4.7	6.4	5.0
November	..	..	7.5	6.7	2.8	5.7
December	..	..	7.4	4.6	2.6	5.1
Annual	..	..	112.7	62.5	46.8	61.6

The incidence of dengue among BORs was quite extraordinary when it is compared with that of other troops in Ceylon. Ceylonese suffered very little from it due perhaps to their natural immunity but Indian troops registered fairly high admission rates. The incidence among the latter was, however, of not much significance when it is compared with that for the BORs. In 1942, a rate of 78.8 per 1,000 was observed among the BORs which was more than $4\frac{1}{2}$ times the corresponding Indian rate. The BORs rate was five times that of the Indian rate in 1943; three times in 1944 and again about five times in 1945. None of the differences between the incidence rates from dengue from 1942 to 1945 is statistically significant. It was only among the British troops that dengue was third in order of the magnitude of incidence. Its importance from that point of view was very much lower in the Indian and other troops in Ceylon. Some idea of its severity on the BORs may be had from the fact that dengue accounted for 7.2 per cent. of sick admissions in 1942; 6.7 per cent. in 1943; 8.8 per cent. in 1944 and 3.4 per cent. in 1945 (Table 26). On an average 8 out of every 100 BORs suffered from dengue in 1942, 5.4 in 1943, 5.3 in 1944 and 2.0 in 1945.

Monthly incidence due to dengue among BORs—1942-45.

Month			1942	1943	1944	1945
January	..	..	..	7.8	5.0	3.9
February	..	..	..	6.9	4.0	1.4
March	..	..	..	4.7	4.9	2.7
April	..	..	2.2	7.2	3.3	1.8
May	..	..	7.4	3.5	4.4	1.0
June	..	..	9.0	4.9	2.9	1.0
July	..	..	5.9	4.1	6.5	1.6
August	..	..	6.1	2.4	6.9	1.2
September	..	..	8.2	2.1	3.3	0.8
October	..	..	6.8	2.6	5.4	1.6
November	..	..	6.1	3.8	3.5	0.6
December	..	..	6.5	3.4	2.9	2.9
Annual	..	..	78.8	54.1	53.1	19.8

Towards the end of 1944 and 1945 it seems dengue was checked to a great extent. In this respect a rate of 0.6 per 1,000 in November 1945 compares favourably with a rate of 9.0 per 1,000 in June 1942. These figures do not show any uniform trend in the spread of dengue. Usually a month or two, of high incidence were followed by one of low incidence. Dengue was endemic in the coastal regions of Ceylon, where frequent operational exercises were held.

Minor septic diseases caused heavy morbidity among the BORs, as among other troops. The relevant rates per 1,000 strength were 88.4 in 1942, 31.7 in 1943, 28.2 in 1944 and 27.2 in 1945 (Table 25). After falling by about 64 per cent. in 1943, the rate did not fall to any appreciable extent. The difference was not statistically significant. It was in 1942 that these diseases accounted for 8.1 per cent. of all sick admissions. Afterward admissions due to these diseases were reduced to 3.9 per cent. in 1943, 4.7 per cent. each in 1944 and 1945. From the figures of absolute incidence during 1943-45 it appears that about 3 per cent. of BORs were admitted for minor septic diseases in Ceylon.

The incidence of dysentery among the BORs was of a higher order than that among the other troops in Ceylon. The relevant rates were 27.8 per 1,000 in 1942, 25.2 in 1943, 29.4 in 1944 and 29.3 in 1945. These figures show that the incidence of dysentery fell somewhat in 1943 but increased again in 1944. On an average it may be said that in each year 3 per cent. of BORs were laid down with dysentery. This is about 57 per cent. higher than the average rate of the Ceylonese other ranks and about 42 per cent. higher than the Indian rate. The relative rate of admissions to hospitals due to dysentery was never less than 2.5 per cent. of all sick admissions among the BORs in 1942. It was 3 per cent. in 1943 and 5 per cent. in each of 1944 and 1945.

That incidence of dysentery showed a seasonal variation, as can be seen in the figures of monthly incidence given on next page.

Monthly incidence of dysentery among BORs—1942-45

Month			1942	1943	1944	1945
January	..	..	..	0.5	1.4	2.5
February	..	..	..	1.2	2.4	2.5
March	..	..	..	0.7	1.7	3.9
April	..	..	2.2	3.1	2.8	3.8
May	..	..	1.8	4.9	2.2	2.6
June	..	..	2.0	1.5	2.1	1.9
July	..	..	2.4	1.8	2.6	2.5
August	..	..	3.3	1.0	2.2	3.2
September	..	..	2.5	2.4	3.0	1.3
October	..	..	2.6	5.4	4.3	1.6
November	..	..	2.0	6.0	2.9	1.0
December	..	..	1.3	3.4	2.3	1.8

The association of monsoons i.e. May to July and October to December each year, with higher rates of incidence from dysentery can be seen in the figures given above. It seems dysentery was prevalent among BORs in epidemic proportions especially during May, October and November of 1943, October 1944 and April 1945. There is also even spread of the monthly rates over the whole period.

Diarrhoea contributed its share to the general morbidity at a rate next only to dysentery. Its incidence in 1942 was of a greater magnitude than that of dysentery among BORs. The rate for the former was 35.2 per 1,000 against 27.8 per 1,000 of the latter. But after 1942 dysentery rates were consistently higher than the rates for diarrhoea. Figures of diarrhoea incidence show an increasing trend from 1943 onwards. The relevant rates were 15.3 per 1,000 in 1943, 16.6 in 1944 and 21.0 in 1945. On an average, about 2.2 per cent. of BORs were suffering from diarrhoea each year in Ceylon, and it caused 3.2 per cent. of all sick admissions among them in 1942; 1.9 per cent. in 1943; 2.8 per cent. in 1944 and 3.6 per cent. in 1945.

A trend closely allied to that revealed by the monthly incidence of dysentery was also recorded in respect of diarrhoea as indicated below:—

Monthly incidence of diarrhoea among BORs—1942-45.

Month			1942	1943	1944	1945
January	..	..	..	0.4	1.4	1.0
February	..	..	..	0.4	2.0	0.5
March	..	..	..	1.0	2.6	1.5
April	..	..	5.2	2.5	0.6	1.2
May	..	..	2.4	3.0	0.8	1.6
June	..	..	2.6	2.7	0.8	1.4
July	..	..	4.4	1.0	1.3	3.2
August	..	..	4.6	1.7	1.3	3.4
September	..	..	3.5	1.1	1.2	1.0
October	..	..	2.5	1.5	1.2	2.1
November	..	..	1.5	1.1	2.2	1.2
December	..	..	0.8	1.2	1.9	2.5

It seems again that it was in 1943 and 1944 that a lower incidence from this condition was recorded. Diarrhoea incidence among BORs was of a higher order than that among the Indian troops throughout.

The incidence of tonsillitis among BORs was higher than among Indian or Ceylonese troops. Among BORs the rates were 33·4 per 1,000 in 1942, 15·2 in 1943, 12·7 in 1944 and 16·5 in 1945. Indians and Ceylonese troops recorded an average rate of 4 to 5 per 1,000 throughout the period. Among BORs in 1942 and 1945 it was responsible for about 3 per cent. of all sick admissions whereas in 1943 and 1944 the relative percentage of its admissions among diseases was 2 per cent.

An ailment from which BORs escaped comparatively lightly, as against other troops, was common cold. Absolute rates of incidence from it among the BORs, during the four years under consideration were 30 in 1942; 17 in 1943; 13 in 1944 and 8 in 1945. The incidence in 1945 was about one-fourth of that in 1942 and continued to decline throughout the period. As has already been observed, this was not the case with the VCOs and IORs or the Ceylonese other ranks. The former had rates of 18, 9, 26 and 8 per 1,000 respectively during 1942, 1943, 1944 and 1945 while the latter had very much higher rates without having registered a decline. The rates for the Ceylonese other ranks were 82 per 1,000 in 1943; 89·5 in 1944 and 81 in 1945. These are generally about five times the corresponding British rates.

It seems hepatitis also assumed the shape of a major illness for the BORs also, in Ceylon. It was reported in 1943 to be particularly prevalent in the Trincomalee area. An average rate of about 8 per 1,000 was reported among them against an average rate of 6 per 1,000 among the VCOs and IORs and of 4 per 1,000 among the Ceylonese other ranks.

The incidence of mental diseases among the BORs was almost the same (except during 1945) as among the other troops in Ceylon. A rate of 10·3 per 1,000 was reported among the BORs during 1945 against a rate of 2·5 per 1,000 for the Ceylonese other ranks and a rate of 6 per 1,000 for the VCOs and IORs. This difference is very large indeed. During the other years, the incidence of mental diseases among the BORs was 5·5 per 1,000 in 1942, 3·8 in 1943 and 4·9 in 1944.

Figures for ear, nose and throat; and skin diseases are available for 1944 and 1945 only. But their extent in these two years shows that they were prevalent at very much larger rates than among the other troops. The incidence in 1942 and 1943 may also have been the same. Possibly the ENT cases were included under the heading "all other diseases".

The rates of incidence of skin diseases were 48 per 1,000 in 1944 and 68·8 in 1945 (Table 25). Skin diseases thus caused 8 per cent. of all sick admissions in 1944 and 12 per cent. of all admissions in 1945. The skin diseases caused the maximum admissions of any disease in 1945 among the BORs. A table of monthly incidence rates due to skin diseases among BORs is given on next page. It will be seen that hot and moist weather had a tendency to record higher incidence and dry and cold weather produced the contrary effect.

Monthly incidence of skin diseases among BORs—1944-45.

Month			1944	1945
January ..	..	..	4.5	4.2
February ..	..	..	1.9	3.6
March ..	..	..	3.8	0.9
April ..	..	..	2.2	4.0
May ..	..	..	2.8	6.7
June ..	..	..	2.1	7.1
July ..	..	..	3.4	4.3
August ..	..	..	3.6	8.3
September ..	..	..	4.7	4.6
October ..	..	..	5.8	6.9
November ..	..	..	6.1	10.2
December ..	..	..	4.8	9.0

In addition to frequently transferring the British soldiers to more healthy hilly areas, adequate preventive and curative measures were strictly enforced. But these measures do not seem to have effected the incidence of skin diseases.

Figures of incidence of ear, nose and throat diseases are hardly more encouraging than those of skin diseases. The relevant rates were 20.7 per 1,000 in 1944 and 19.8 per 1,000 in 1945, i.e. about 3.4 per cent. of all sick admissions each year (Tables 25 and 26). These rates are lower than the corresponding rates for VCOs and IORs but higher than those for the Ceylonese officers and other ranks.

It will be seen that individual diseases have varied in the trend of their annual incidence in different ways, some showing a gradual decline over the period others recording a gradual increase and still others not recording any such uniform tendency but fluctuating erratically from year to year. But, if "all diseases" and "all cases" are taken together (Table 25), the rates were 1,166 per 1,000 in 1942, 865 in 1943, 657 in 1944 and 631 in 1945. These figures show that the order of morbidity among BORs in 1945 was about half of that prevalent among them in 1942. Up to 1944 very big reductions seem to have been affected. The rate in 1943 was 26 per cent. lower than the previous years' and the rate in 1944 was again 24 per cent. lower than that in 1943. By 1945 the general incidence rates seem to have been stabilised, the rate in that year was only 4 per cent. lower than the rate for 1944.

Another way of looking at the figures of incidence due to all causes is that in 1942, out of every 1,000 BORs, 1,166 were admitted to hospitals. The corresponding figures for the following years were 865 in 1943, 657 in 1944 and 631 in 1945.

Injuries due to enemy action were responsible for an incidence rate of 5.3 per 1,000 in 1942 and less than 1 per 1,000 afterwards. The rates of injuries due to non-enemy action were 66 per 1,000 in 1942, 51 in 1943, 55 in 1944 and 47 in 1945 (Table 25). If the incidence due to

injuries be taken out of the incidence due to "all causes", diseases morbidity rates (Table 27) indicate that diseases were responsible each year for 92 to 94 per cent. of all casualties admitted to hospital. Their incidence rates portray exactly the trend shown by all causes from year to year.

In terms of average number of BORs constantly confined to bed in hospital every day, 6.4 per cent. of them were daily in hospital during 1942, 5.2 per cent. in 1943, 3.0 per cent. in 1944 and only 2.7 per cent. in 1945. These figures are higher each year among BORs than the other troops in Ceylon except in 1945 when they are about even between British, Indian and Ceylonese troops.

A reference to Table 26 will show that cerebrospinal fever was practically nonexistent among the BORs. Diphtheria claimed twenty cases in 1942, eleven cases in 1943, forty-one cases in 1944 and only one case in 1945. A few cases of enteric group of fevers were also admitted to hospitals. The largest number was 31 in 1942 after which they were negligible. Four cases of mumps in 1942 and one each in 1944 and 1945 were reported. Dermal leishmaniasis was conspicuous by its absence in all years except a case in 1942. There were 14 cases of poliomyelitis recorded during 1943 and only 4 in 1944. There were 27 cases of sandfly fever in 1942, 6 in 1943, 11 in 1944 and 3 in 1945. The number of cases of scabies admitted to hospitals was 62 in 1942, 72 in 1943, 40 in 1944 and 46 in 1945.

The first two cases of smallpox occurred in 1944, followed by one case in 1945. Eight cases of scrub typhus were reported in 1943 and thirty-six in 1944.

Influenza caused twenty-eight hospital cases in 1942, six in 1943 and two in 1944.

Heat stroke accounted for 2 cases in 1942, 15 in 1943, 13 in 1944 and 1 in 1945, and heat exhaustion 16 cases in 1942, 4 in 1943 and 1 each in 1944 and 1945.

It will be seen from Table 27 that the group 'infective and parasitic diseases' was the most important cause among the various groups and was responsible for 52.0 per cent. of all hospital admissions in 1942, 51.4 per cent. in 1943, 40.8 per cent. in 1944 and 31.4 per cent. in 1945. Next in importance to 'infective and parasitic diseases' came the 'digestive diseases' group, which was responsible for 6 to 8 per cent. of all admissions during these years. It may be added that diarrhoea is included in this group of diseases which perhaps is the cause of its large share to the total. The other important group, during all the years, was "respiratory diseases." Its importance varied from 6.2 per cent. in 1942 and 3.9 per cent. in 1943 to 6.3 per cent. in 1944 and 5.9 per cent. in 1945. Other groups that assumed some importance were those in the mental group, responsible for 1.6 per cent. of all admissions, in 1945, 'diseases of the nervous system and sense organs' which were responsible for 4 per cent. of all admissions in 1944 and 4.7 per cent. in 1945, diseases of skin and cellular tissue which caused 7.3 per cent. of all admissions in 1944 and 10.9 per cent. in 1945, and 'symptoms, senility and ill-defined conditions' which caused 1.1 per cent. of all admissions

in 1943, 6·7 per cent. in 1944 and 4·3 per cent. in 1945. The larger percentages of 1944 and 1945 are due to the inclusion of "not yet diagnosed cases" as a separate cause in these two years only.

The total death rates were 2·2 per 1,000 in 1942; 2·7 in 1943; 1·8 in 1944 and 1·7 in 1945.

TABLE 25

Admissions to Hospitals—Annual rates per 1,000 strength: BORs: SEAC (Ceylon Army Command).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0·08	..	..	..
Dengue	78·83	54·11	53·08	19·81
Diphtheria	1·59	0·68	3·93	0·15
Dysentery	27·81	25·23	29·37	29·34
Enteric group of fevers ..	2·46	0·31	0·77	0·30
Infective hepatitis (Jaundice) ..	8·50	5·87	9·79	9·38
Malaria	278·13	253·80	81·97	36·00
Major septic diseases ..	..	..	1·06	4·39
Minor septic diseases ..	88·37	31·72	28·22	27·23
Mumps	0·32	..	0·10	0·15
Oriental sore	0·08	..	..	..
Pediculosis .. ..	..	..	0·10	..
Poliomyelitis .. ..	..	0·87	0·38	..
Sandfly fever	2·15	0·37	1·06	0·45
Scabies	4·85	4·45	3·84	6·96
Smallpox .. ..	..	..	0·19	0·15
Tuberculosis	1·35	1·55	3·36	1·51
Trachoma	0·24	0·25	1·06	..
Typhus fever .. ..	..	0·49	3·46	..
Venereal diseases ..	112·68	62·52	46·84	61·56
Total	607·44	442·24	268·58	197·40
(2) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0·76
(3) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	5·48	3·77	4·89	10·29
(4) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases .. ..	..	..	20·73	19·81
Eye diseases other than trachoma	11·20	7·05	5·37	9·68
Total	11·20	7·05	26·11	29·50
(5) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0·08	0·18	0·10	1·66

TABLE 25—(Contd.)

Diseases		1942	1943	1944	1945
	Other circulatory diseases	..	..	3.07	2.27
	Total	0.08	0.18	3.17	3.93
(6)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	29.88	17.44	12.57	7.71
	Tonsillitis	33.38	15.15	12.67	16.49
	Pharyngitis	5.96	3.09	..	..
	Influenza	2.22	0.37	0.19	..
	Other respiratory diseases	..	..	15.84	13.76
	Total	71.44	36.05	41.27	37.96
(7)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	35.20	15.34	16.61	21.03
	Other digestive diseases	42.04	40.01	33.02	31.16
	Total	77.24	55.35	49.63	52.19
(8)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	..	..	47.99	68.82
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever .. ..	..	..	41.95	23.60
	PUO	9.85	9.52	2.11	3.63
	Total	9.85	9.52	44.06	27.23
(10)	<i>All other diseases</i> ..	311.19	259.06	116.53	156.25
(11)	<i>All diseases</i>	1,093.93	813.23	602.23	584.33
(12)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Burns and scalds ..	..	..	..	2.57
	Other local injuries ..	66.43	50.96	54.62	44.32
	Total	66.43	50.96	54.62	46.89
(13)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Bomb wounds	1.67	..	0.10	..
	Gunshot wounds ..	3.26	0.31	0.38	0.15
	Shell wounds	0.40	0.18	0.19	..
	Total	5.32	0.49	0.67	0.15
(14)	<i>All cases</i>	1,165.69	864.69	657.52	631.37
(15)	<i>Average daily sick</i> ..	64.28	51.97	29.87	26.74
(16)	<i>Deaths</i>	2.22	2.72	1.82	1.66

TABLE 26

Relative morbidity rates: BORs: SEAC (Ceylon Army Command).

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	0.01	..	..	..
	Dengue ..	7.21	6.65	8.81	3.39
	Diphtheria ..	0.14	0.08	0.65	0.03
	Dysentery ..	2.54	3.10	4.88	5.02
	Enteric group of fevers ..	0.22	0.04	0.13	0.05
	Infective hepatitis (Jaundice) ...	0.78	0.72	1.63	1.60
	Malaria ..	25.42	31.21	13.51	6.16
	Major septic diseases ..	..	..	0.17	0.75
	Minor septic diseases ..	8.08	3.90	4.69	4.66
	Mumps ..	0.03	..	0.02	0.03
	Oriental sore ..	0.01	..	..	..
	Pediculosis ..	..	..	0.02	..
	Poliomyelitis ..	..	0.11	0.06	..
	Sandfly fever ..	0.20	0.05	0.17	0.08
	Scabies ..	0.44	0.55	0.64	1.19
	Smallpox ..	..	..	0.03	0.03
	Tuberculosis ..	0.12	0.19	0.56	0.26
	Trachoma ..	0.02	0.03	0.17	..
	Typhus fever ..	..	0.06	0.57	..
	Venereal diseases ..	10.30	7.69	7.78	10.54
	Total ..	55.53	54.38	44.59	33.78
(2)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia ..	..	..	..	0.13
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	0.50	0.46	0.81	1.76
(4)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases ..	..	..	3.44	3.39
	Eye diseases other than trachoma ..	1.02	0.87	0.89	1.66
	Total ..	1.02	0.87	4.33	5.05
(5)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	0.01	0.02	0.02	0.28
	Other circulatory diseases ..	..	..	0.51	0.39
	Total ..	0.01	0.02	0.53	0.67
(6)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	2.73	2.14	2.09	1.32
	Tonsillitis ..	3.05	1.86	2.10	2.82
	Pharyngitis ..	0.54	0.38	..	..

TABLE 26—(Contd.)

Diseases		1942	1943	1944	1945
	Influenza	0.20	0.05	0.03	..
	Other respiratory diseases .. ..	..	..	2.63	2.36
	Total	6.53	4.43	6.86	6.50
(7)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	3.22	1.89	2.76	3.60
	Other digestive diseases	3.84	4.92	5.48	5.33
	Total	7.06	6.81	8.24	8.93
(8)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases .. ..	..	..	7.97	11.78
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever .. ..	..	..	6.96	4.04
	PUO	0.90	1.17	0.35	0.62
	Total	0.90	1.17	7.31	4.66
(10)	<i>All other diseases</i>	28.43	31.85	19.26	26.75
(11)	<i>All diseases</i>	100.00	100.00	100.00	100.00

TABLE 27

Relative casualty rates: BORs: SEAC (Ceylon Army Command).

Specialist groups		1942	1943	1944	1945
(1)	Infective and parasitic diseases	52.04	51.44	40.84	31.36
(2)	Diseases of the blood and blood forming organs .. ..	..	..	..	0.12
(3)	Mental, psychoneurotic and personality disorders	0.47	0.44	0.74	1.63
(4)	Diseases of the nervous system and sense organs	0.96	0.81	3.97	4.67
(5)	Diseases of the circulatory system	0.01	0.02	0.48	0.62
(6)	Diseases of the respiratory system	6.19	3.87	6.28	5.92
(7)	Diseases of the digestive system	6.63	6.40	7.53	8.26
(8)	Diseases of the skin and cellular tissue .. ..	..	..	7.30	10.90
(9)	<i>Symptoms, senility and ill-defined conditions</i>	0.84	1.10	6.70	4.31
(10)	<i>All other diseases</i>	26.70	29.96	17.72	24.75
(11)	<i>All diseases</i>	93.84	94.05	91.59	92.55
(12)	Non-battle injuries	5.70	5.89	8.31	7.43
(13)	Battle injuries	0.46	0.06	0.10	0.02
(14)	<i>All cases</i>	100.00	100.00	100.00	100.00

Section XII

BRITISH OFFICERS (BOs)

All BOs, whether attached to British, Indian or East African units in Ceylon are being considered together in this section.

A careful comparison of Tables 25 and 28 for BORs and BOs reveals that if venereal diseases be left out of account then the order followed by some important diseases in respect of the intensity of their incidence for both is the same. Rates for individual diseases are, however, different. The venereal diseases rates for BOs were 9.3 per 1,000 in 1942, 7.1 in 1943, 17.3 in 1944 and 8.6 in 1945. Except for the rate in 1944, the typical general rate from venereal diseases among BOs might be taken as about 8 per 1,000. The average rate for BORs was 71 per 1,000. Taken year by year, the rate for BOs in 1942 was about one-thirteenth of the corresponding rate for BORs; one-ninth in 1943; one-third in 1944 and one-seventh in 1945. From the point of view of the intensity of incidence venereal diseases rate was so low among the BOs that these diseases occupied the bottom of the list of the important diseases from which they suffered.

During 1942 and 1943, malaria rate among BOs was about 50 per cent. of the rate among BORs. The relevant rates were 135.5 per 1,000 in 1942; 132.3 in 1943; 70.7 in 1944 and 33.1 in 1945 (Table 28). The decline in its incidence in 1944 and 1945 was particularly great. When the malaria rate was lowest, it was responsible for 7.5 per cent. of all sick admissions among BOs in 1945 and when the rate was highest, for 20.9 per cent. of such admissions in 1943.

Other diseases which followed malaria in their order of incidence were dengue, minor septic diseases, dysentery, diarrhoea, tonsillitis, common cold and hepatitis.

Dengue had a rate of 111.7 per 1,000 for the BOs in 1942, which was 29 per cent. higher than the corresponding rate for BORs. During this year the incidence of dengue among BOs was very high. The 1942 rate fell down to about half in 1943. This rate then showed a steep decline. The 1945 rate was half of the corresponding BORs' rate. Some idea of the extent of reduction affected in the incidence of dengue among BOs during this period may be had from the fact that its rate of 111.7 per 1,000 was reduced by 1945 to 10.1 per 1,000.

Minor septic diseases among BOs had about even rates of incidence with BORs in all the years except in 1945 when it was 50 per cent. lower. Except for 1942, when they caused 10 per cent. of all sick admissions, they were responsible for 4 to 5 per cent. of such admissions each year. Similar was the case with dysentery, diarrhoea and tonsillitis. The difference in the incidence of common cold and hepatitis between BOs and BORs each year was considerable. For instance in 1942, common cold had a rate of 19.7 per 1,000 for BOs and of 30 per 1,000 for BORs. Similar difference was observed in 1943, when the relevant rates were 11.5 per 1,000 for the BOs and 17.4 per 1,000 for the BORs. It was from 1944 that the higher incidence among

the BOs started to be recorded. The rate for BOs in 1944 was 14 per 1,000, against 13 per 1,000 of the BORs. In 1945 the picture was completely reversed from what it was in 1942, a rate of 15·8 per 1,000 for BOs was reported against 7·7 per 1,000 for the BORs.

The rates of incidence from hepatitis among the BOs were 24 per 1,000 in 1942, five in 1943, 12·5 in 1944 and 7·2 in 1945 (Table 28). These were higher than corresponding rates of BORs.

Except for these broad differences the pattern of sickness history in respect of major diseases of the BOs and BORs was similar.

The incidence rates from all causes for BOs were 932·8 per 1,000 in 1942, 674·3 in 1943, 674·4 in 1944 and 481·5 in 1945. These indicate that out of every 100 BOs, 93 were admitted to hospital from all causes in 1942; 67 in each of the years 1943 and 1944; and 48 in 1945. These are lower figures than those for BORs each year except in 1944 when they were about equal. Diseases alone were responsible for 92 to 94 per cent. of total morbidity each year. The balance of 6 to 8 per cent. was contributed by enemy action and non-enemy action injuries. The enemy action casualties among BOs were at a rate of 10·3 per 1,000 in 1942; 1·3 per 1,000 in 1943; 1·4 per 1,000 in 1944 and 0·5 per 1,000 in 1945; the BORs casualty rate was lower. While the non-enemy action casualties among BOs were 65·2 per 1,000 in 1942; 41·2 in 1943; 50·0 in 1944 and 38·4 in 1945; the corresponding BOR casualty rate was higher.

The average number of BOs admitted to hospitals daily in Ceylon were 3·6 for each 100 of them in 1942; 3·3 in 1943; 2·6 in 1944 and 1·9 in 1945. These are very much lower figures each year than those for BORs. A gradual improvement in the daily average is also noticeable (Table 28).

As in the case of BORs, a few cases were caused among BOs by such diseases as diphtheria, enteric group of fevers, mumps, poliomyelitis, scabies, typhus and influenza. Their details are given in Tables 28 and 29.

For BOs, the percentage of admissions attributable each year to 'infective and parasitic diseases' (in all causes) was lower than that among the BORs. The percentages for BOs were 43·5 in 1942, 40·2 in 1943, 33·9 in 1944 and 22·3 in 1945.

Digestive diseases were, however, always of greater concern to the officers than to the other ranks. Respiratory diseases were about evenly balanced in all causes between these categories of troops till 1943 after which their percentage admissions were higher each year among officers.

There was not much of a big difference for the rest of the groups of diseases between them (Table 30).

Mortality rates from all causes for BOs were 2·1 per 1,000 in 1942; 1·8 per 1,000 in 1943; 3·8 per 1,000 in 1944 and 1·9 per 1,000 in 1945. In the first two years, viz., 1942 and 1943, it was lower than the BORs rate, but in 1945, it was slightly higher.

TABLE 28

*Admissions to Hospitals—Annual rates per 1,000 strength: British Officers:
SEAC (Ceylon Army Command).*

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	..	0.88	..	..
Dengue	111.69	60.18	57.72	10.07
Diphtheria	7.24	..	3.37	0.48
Dysentery	27.92	29.90	27.42	26.86
Enteric group of fevers ..	..	0.44	0.96	..
Infective hepatitis (Jaundice) ..	23.78	5.31	12.51	7.19
Malaria	135.47	132.30	70.71	33.09
Major septic diseases ..	..	..	2.89	0.96
Minor septic diseases ..	85.83	28.32	30.78	18.22
Mumps	1.03	0.88	..	0.48
Poliomyelitis .. ..	..	1.77	0.48	0.48
Scabies .. ..	..	1.33	1.44	0.48
Tuberculosis	2.07	1.33	0.48	0.48
Trachoma	1.03	..	0.48	..
Typhus fever .. ..	..	1.77	1.92	..
Venereal diseases ..	9.31	7.08	17.32	8.63
Total	405.38	270.80	228.47	107.43
(2) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	6.20	3.10	6.25	8.63
(3) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases .. ..	..	..	14.91	6.23
Eye diseases other than trachoma ..	6.20	1.77	7.21	4.32
Total	6.20	1.77	22.13	10.55
(4) <i>Diseases of the Circulatory system</i>				
Rheumatic fever .. ..	..	0.44	..	1.92
Other circulatory diseases ..	..	..	2.89	2.88
Total .. ..	..	0.44	2.89	4.80
(5) <i>Diseases of the Respiratory system</i>				
Common cold	19.65	11.50	13.95	15.83
Tonsillitis	22.75	11.50	14.91	19.18
Pharyngitis	4.14	0.44	..	..
Influenza	5.17	1.77	..	0.48
Pneumonia .. ..	..	..	..	0.96
Other respiratory diseases ..	..	..	19.24	9.59
Total	51.71	25.22	48.10	46.05
(6) <i>Diseases of the Digestive system</i>				
Diarrhoea	25.96	20.35	26.94	17.27

TABLE 28—(Contd.)

Diseases		1942	1943	1944	1945
	Other digestive diseases	73.42	41.59	45.69	29.74
	Total	102.38	61.95	72.63	47.00
(7)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases .. ..	..	..	43.29	49.40
(8)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever .. ..	..	..	55.31	24.46
	PUO	3.10	10.62	2.89	4.32
	Total	3.10	10.62	58.20	28.78
(9)	<i>All other diseases</i> ..	282.31	257.96	140.93	140.05
(10)	<i>All diseases</i>	857.29	631.86	622.90	442.69
(11)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Burns and scalds .. ..	..	..	..	0.96
	Other local injuries ..	65.15	41.15	50.02	37.41
	Total	65.15	41.15	50.02	38.37
(12)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Bomb wounds	3.10	..	0.96	..
	Gunshot wounds	3.10	0.88	0.48	0.48
	Shell wounds	4.14	0.44	..	..
	Total	10.34	1.33	1.44	0.48
(13)	<i>All cases</i>	932.78	674.34	674.36	481.53
(14)	<i>Average daily sick</i> ..	35.97	33.08	25.84	19.27
(15)	<i>Deaths</i>	2.07	1.77	3.85	1.92

TABLE 29

Relative morbidity rates: British Officers: SEAC (Ceylon Army Command).

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	..	0.14	..	..
	Dengue	13.03	9.52	9.33	2.27
	Diphtheria	0.84	..	0.54	0.11
	Dysentery	3.26	4.62	4.43	6.07
	Enteric group of fevers ..	..	0.07	0.15	..
	Infective hepatitis (Jaundice) ..	2.77	0.84	2.02	1.62
	Malaria	15.80	20.94	11.42	7.48
	Major septic diseases ..	..	..	0.47	0.22
	Minor septic diseases ..	10.01	4.48	4.97	4.12
	Mumps	0.12	0.14	..	0.11
	Poliomyelitis .. ..	..	0.28	0.08	0.11

TABLE 29—(Contd.)

Diseases		1942	1943	1944	1945
	Scabies .. ..	..	0.21	0.23	0.11
	Tuberculosis ..	0.24	0.21	0.08	0.11
	Trachoma	0.12	..	0.08	..
	Typhus fever ..	..	0.28	0.31	..
	Veneral diseases ..	1.09	1.12	2.80	1.95
	Total	47.29	42.86	36.92	24.27
(2)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	0.72	0.49	1.01	1.95
(3)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases ..	..	..	2.41	1.41
	Eye diseases other than trachoma ..	0.72	0.28	1.17	0.97
	Total	0.72	0.28	3.57	2.38
(4)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	..	0.07	..	0.43
	Other circulatory diseases ..	..	..	0.47	0.65
	Total .. ..	..	0.07	0.47	1.08
(5)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	2.29	1.82	2.25	3.57
	Tonsillitis	2.65	1.82	2.41	4.33
	Pharyngitis	0.48	0.07	..	..
	Influenza	0.60	0.28	..	0.11
	Pneumonia .. ..	..	..	..	0.22
	Other respiratory diseases ..	..	..	3.11	2.17
	Total	6.03	3.99	7.77	10.40
(6)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	3.38	3.22	4.35	3.90
	Other digestive diseases ..	8.56	6.58	7.38	6.72
	Total	11.94	9.80	11.74	10.62
(7)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases .. ..	..	..	6.99	11.16
(8)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever .. ..	..	..	8.94	5.52
	PUO	0.36	1.68	0.47	0.97
	Total	0.36	1.68	9.40	6.50
(9)	<i>All other diseases</i> ..	32.93	40.82	22.77	31.64
(10)	<i>All diseases</i>	100.00	100.00	100.00	100.00

TABLE 30

Relative Casualty rates: British Officers: SEAC (Ceylon Army Command).

Diseases	1942	1943	1944	1945
(1) Infective and parasitic diseases	43.46	40.21	33.88	22.31
(2) Mental, psychoneurotic and personality disorders	0.66	0.46	0.93	1.79
(3) Diseases of the nervous system and sense organs	0.66	0.26	3.28	2.19
(4) Diseases of the circulatory system .. ..	..	0.07	0.43	1.00
(5) Diseases of the respiratory system	5.54	3.68	7.13	9.86
(6) Diseases of the digestive system	10.98	9.19	10.77	9.76
(7) Diseases of the skin and cellular tissue .. ..	..	..	6.42	10.26
(8) Symptoms, senility and ill-defined conditions ..	0.33	1.57	8.63	5.98
(9) All other diseases ..	30.29	38.26	20.90	29.08
(10) All diseases ..	91.91	93.70	92.37	91.93
(11) Non-battle injuries ..	6.98	6.10	7.42	7.97
(12) Battle injuries ..	1.11	0.20	0.21	0.10
(13) All cases	100.00	100.00	100.00	100.00

Section XIII

MILITARY NURSING SERVICE (BRITISH SERVICE) AND A.T.S.

The combined total of the strength of both "Military Nursing Service (British Service)" and A.T.S. (British Service) upto 1944 was not even one hundred. Under the circumstances it is difficult to treat them each year as a representative sample. Their morbidity is, therefore, discussed here in terms of relative rates only and not in terms of absolute rate of incidence. Figures of relative rates for specific diseases are given in Table 31. These rates are not broadly comparable from year to year but have importance of comparability in a single year only. For instance, it would not be correct to say that since the relative rate of malaria in 1942 was 3.6 per cent., and 4.25 per cent. in 1944, that the absolute incidence of malaria in the latter year was higher. Actually the rates were 62.5 per 1,000 in 1942 and 36.4 in 1944. What these rates, however, do indicate is that in 1942, malaria alone caused 3.6 per cent. of all sick admissions to hospitals whereas in 1944 its share of admissions against those of all diseases increased to 4.25.

A very striking feature of Table 31 is the complete absence of venereal diseases and war wound cases among the Military Nursing Service (British Service) and A.T.S. (British Service). In respect of malaria and skin diseases also it can be stated that relatively (and absolutely also) they seem to have suffered from very much smaller morbidity rates. No malaria case was reported among them during 1943. The relative rates of malaria in the rest of the years were 3.57 per cent. in 1942, 4.25 per cent. in 1944 and 7 per cent. in 1945.

Unlike venereal diseases and malaria, the relative rates from other important diseases, among the British female troops, were higher each year than those for either BOs or BORs. This was so in respect of common cold, dengue, dysentery, tonsillitis and diarrhoea. Except in 1942, minor septic diseases produced higher relative rates among BOs and BORs.

Besides the cases from some major disease these troops suffered very little from other causes, unlike the other troops in Ceylon. For instance, only one case from diphtheria was admitted to hospital in 1944; one case from enteric group of fevers in 1945; one case each in 1942 and 1945 and two in 1944 from hepatitis, one case each from mumps and influenza in 1945 and two cases of heat exhaustion in 1945.

Taken as a whole, 84 cases from one disease or another were admitted to hospitals from among the Military Nursing Service and ATS in 1942; 92 cases in 1943; 47 cases in 1944 and 200 cases in 1945. A fourfold increase in 1945 was due to an increase in their numbers in that year. In addition to these, there were four cases of non-enemy action injuries among them in 1942, six in 1943 and three in 1945. No such case was reported in 1944.

TABLE 31

Relative morbidity rates: MNS(BS) and ATS: SEAC (Ceylon Army Command).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Dengue	22.62	17.39	23.40	12.00
Diphtheria .. ..	..	..	2.13	..
Dysentery	8.33	3.26	10.64	5.00
Enteric group of fevers ..	..	..	..	0.50
Infective hepatitis (Jaundice)	1.19	..	4.25	0.50
Malaria	3.57	..	4.25	7.00
Minor septic diseases ..	11.90	4.35	2.13	3.50
Mumps .. ..	..	..	..	0.50
Tuberculosis .. ..	..	..	2.13	..
Total	47.62	25.00	48.93	29.00
(2) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0.50
(3) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases .. ..	..	2.17	2.13	1.50
(4) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases .. ..	..	..	4.25	3.00
Eye diseases other than trachoma	1.19	..	..	..
Total	1.19	..	4.25	3.00
(5) <i>Diseases of the Circulatory system</i>				
Rheumatic fever .. ..	..	..	..	..
Other circulatory diseases	..	..	..	1.00
Total .. ..	..	..	..	1.00
(6) <i>Diseases of the Respiratory system</i>				
Common cold	7.14	6.52	2.13	1.50
Tonsillitis	3.57	8.70	2.13	5.00
Pharyngitis	1.19	4.35	..	..
Influenza .. ..	..	..	..	0.50
Other respiratory diseases	..	..	2.13	1.50
Total	11.91	19.56	6.38	8.50
(7) <i>Diseases of the Digestive system</i>				
Diarrhoea	4.76	2.17	..	5.50
Other digestive diseases	3.57	2.17	..	10.50
Total	8.33	4.35	..	16.00
(8) <i>Diseases of the Skin and Cellular tissue</i>				
Skin diseases .. ..	..	..	6.38	5.00

TABLE 31—(Contd.)

Diseases	1942	1943	1944	1945
(9) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever .. ..	..	..	..	8.00
Total .. ..	..	..	..	8.00
(10) <i>All other diseases</i> ..	30.95	48.91	31.91	27.00
(11) <i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 32

Admissions to Hospitals—Annual rates per 1,000 strength: British Troops (all types): SEAC (Ceylon Army Command).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.07	0.11	..	..
Dengue	82.28	55.56	54.49	19.69
Diphtheria	1.98	0.59	3.90	0.22
Dysentery	28.24	25.81	29.32	29.09
Enteric group of fevers ..	2.28	0.32	0.80	0.34
Infective hepatitis (Jaundice) ..	9.63	5.79	10.36	8.73
Malaria	267.22	238.22	79.91	35.91
Major septic diseases ..	..	..	1.35	3.47
Minor septic diseases ..	88.61	31.43	28.60	25.17
Mumps	0.37	0.11	0.08	0.34
Oriental sore	0.07	..	..	..
Pediculosis .. ..	..	..	0.08	..
Poliomyelitis .. ..	..	0.97	0.40	0.11
Sandfly fever	1.98	0.32	0.88	0.34
Scabies	4.49	4.06	3.43	5.26
Smallpox .. ..	..	..	0.16	0.11
Tuberculosis	1.40	1.51	2.95	1.23
Trachoma	0.29	0.22	0.96	..
Typhus fever .. ..	..	0.65	3.19	..
Venereal diseases ..	104.93	55.56	41.75	47.55
Total	593.86	421.25	262.58	177.56
(2) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0.67
(3) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	5.51	3.79	5.18	9.96
(4) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases ..	..	..	19.84	16.78

TABLE 32—(Contd.)

Diseases		1942	1943	1944	1945
	Eye diseases other than trachoma	10.88	6.38	5.66	8.17
	Total	10.88	6.38	25.49	24.95
(5)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	0.07	0.22	0.08	1.68
	Other circulatory diseases ..	..	..	3.03	2.57
	Total	0.07	0.22	3.11	4.25
(6)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	29.49	16.99	12.83	9.73
	Tonsillitis ..	32.72	15.09	13.07	17.79
	Pharyngitis ..	5.88	2.98	..	..
	Influenza ..	2.43	0.54	0.16	0.22
	Pneumonia ..	..	..	..	0.22
	Other respiratory diseases ..	..	..	..	12.75
	Total	70.52	35.60	42.46	40.72
(7)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	34.93	16.01	18.24	20.81
	Other digestive diseases ..	44.34	40.20	34.97	32.33
	Total	79.27	56.21	53.22	53.14
(8)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	..	..	47.24	63.55
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	43.98	24.95
	PUO ..	9.34	9.63	2.23	3.69
	Total	9.34	9.63	46.21	28.64
(10)	<i>All other diseases</i> ..	309.95	260.62	121.26	154.40
(11)	<i>All diseases</i> ..	1,079.42	793.70	606.76	557.84
(12)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Burns and scalds ..	..	..	..	2.13
	Other local injuries ..	66.40	49.94	53.62	41.84
	Total	66.40	49.94	53.62	43.97
(13)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Bomb wounds ..	1.76	..	0.24	..
	Gunshot wounds ..	3.23	0.38	0.40	0.22
	Shell wounds ..	0.66	0.22	0.16	..
	Total	5.66	0.59	0.80	0.22
(14)	<i>All cases</i> ..	1,151.48	844.24	661.17	602.04
(15)	<i>Deaths</i> ..	2.21	2.60	2.15	1.68

TABLE 33

Relative morbidity rates: British Troops (all types): SEAC (Ceylon Army Command).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.01	0.01	..	..
Dengue ..	7.62	7.00	8.98	3.53
Diphtheria* ..	0.18	0.07	0.64	0.04
Dysentery ..	2.62	3.25	4.83	5.21
Enteric group of fevers ..	0.21	0.04	0.13	0.06
Infective hepatitis (Jaundice) ..	0.89	0.73	1.71	1.56
Malaria ..	24.76	30.01	13.17	6.44
Major septic diseases ..	..	..	0.22	0.62
Minor septic diseases ..	8.21	3.96	4.71	4.51
Mumps ..	0.03	0.01	0.01	0.06
Oriental sore ..	0.01	..	..	..
Pediculosis ..	..	..	0.01	..
Poliomyelitis ..	..	0.12	0.07	0.02
Sandfly fever ..	0.18	0.04	0.14	0.06
Scabies ..	0.42	0.51	0.56	0.94
Smallpox ..	..	..	0.03	0.02
Tuberculosis ..	0.13	0.19	0.49	0.22
Trachoma ..	0.03	0.03	0.16	..
Typhus fever ..	..	0.08	0.52	..
Venereal diseases ..	9.72	7.00	6.88	8.52
Total ..	55.02	53.07	43.28	31.83
(2) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia ..	..	..	..	0.12
(3) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	0.51	0.48	0.85	1.78
(4) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases ..	..	..	3.27	3.01
Eye diseases other than trachoma ..	1.01	0.80	0.93	1.46
Total ..	1.01	0.80	4.20	4.47
(5) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0.01	0.03	0.01	0.30
Other circulatory diseases ..	..	..	0.50	0.46
Total ..	0.01	0.03	0.51	0.76
(6) <i>Diseases of the Respiratory system</i>				
Common cold ..	2.73	2.14	2.11	1.74
Tonsillitis ..	3.03	1.90	2.15	3.19
Pharyngitis ..	0.54	0.37	..	..
Influenza ..	0.22	0.07	0.03	0.04

TABLE 33—(Contd.)

	Diseases	1942	1943	1944	1945
	Pneumonia ..	..	..		0.04
	Other respiratory diseases ..	..	..	2.70	2.29
	Total ..	6.52	4.48	6.99	7.30
(7)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	3.24	2.02	3.01	3.73
	Other digestive diseases ..	4.11	5.06	5.76	5.80
	Total ..	7.34	7.08	8.77	9.53
(8)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases ..	..	..	7.79	11.39
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	7.25	4.47
	PUO ..	0.86	1.21	0.37	0.66
	Total ..	0.86	1.21	7.62	5.13
(10)	<i>All other diseases</i> ..	28.71	32.83	19.98	27.68
(11)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 34

Relative casualty rates: British Troops (all types): SEAC (Ceylon Army Command).

	Specialist groups	1942	1943	1944	1945
(1)	Infective and parasitic diseases ..	51.57	49.90	39.71	29.49
(2)	Diseases of the blood and blood forming organs ..	..	..	..	0.11
(3)	Mental, psychoneurotic and personality disorders ..	0.48	0.45	0.78	1.65
(4)	Diseases of the nervous system and sense organs ..	0.94	0.76	3.86	4.14
(5)	Diseases of the circulatory system ..	0.01	0.03	0.47	0.71
(6)	Diseases of the respiratory system ..	6.12	4.21	6.42	6.77
(7)	Diseases of the digestive system ..	6.88	6.66	8.05	8.83
(8)	Diseases of the skin and cellular tissue ..	..	..	7.14	10.56
(9)	Symptoms, senility and ill-defined conditions ..	0.81	1.14	6.99	4.76
(10)	All other diseases ..	26.92	31.87	18.34	25.64
(11)	All diseases ..	93.74	94.01	91.77	92.66
(12)	Non-battle injuries ..	5.77	5.92	8.11	7.30
(13)	Battle injuries ..	0.49	0.07	0.12	0.04
(14)	All cases ..	100.00	100.00	100.00	100.00

Section XIV

EAST AFRICAN OTHER RANKS (EAORs)

The strength of East African Troops before July 1943 was of the order of 4,000-6,000. After July it started increasing from about 12,000 in that month to a peak of about 35,000 in May 1944 after which units of the 11th (East African) Division left for the Fourteenth Army area in Burma. By this time enemy threat to Ceylon had also lessened. A force of about 16,000 only was left in Ceylon in June 1944 after which it gradually fell off to about 3,000 by August 1945. Strength figures used for the purpose of calculating absolute incidence rates (Table 35) have been extracted as follows: For 1944, an average of four quarterly strength figures taken from the relevant publications of the Statistical Section, Adjutant General's Branch, General Headquarters (India), has been taken; while for 1945, an average of twelve monthly figures shown on AFA 31-B (Field Service Monthly Return of Sick amongst troops in operational areas) has been struck. The strength figures for the four months of 1943 was determined on the same basis as that for 1945.

The records of hospital admissions are available from September 1943. In Tables 35 and 36 rates of absolute incidence and relative rates are given for full two years of 1944 and 1945 but only for four months, September to December of 1943. Strictly speaking the figures for 1943 should be taken as a proportion only (one-third or so) of their total sickness in that year. It is for this reason that we shall be discussing the comparative value of these figures only for the years 1944 and 1945.

The pattern of the spread of diseases from the point of view of their incidence was quite different for the East Africans from what it was for "VCOs and IORs" and other troops in Ceylon. The highest rates of incidence were not recorded from malaria but from venereal diseases. The relevant rates were 79 per 1,000 in 1944 and 92 in 1945 (Table 35). The 1944 rate was about twice that for the Indian troops and the 1945 rate was $2\frac{1}{2}$ times as much. These diseases registered a higher rate in 1945 as against that for 1944 by about 16 per cent. whereas rates in 1945 over those of 1944 in the case of all other categories of troops in Ceylon were smaller. An increase in respect of venereal diseases was also recorded by the relative rates of these diseases. Their admissions were 19 per cent. in 1944 and 24 per cent. in 1945 of the respective sick admissions during the two years (Table 36). In this connection, it might be noted that the venereal diseases rate for the East African troops for the last four months of 1943 (September to December) was also of a very high order. It was 34 per 1,000 and compares favourably with their rate in 1945. These rates indicate, on an average, that 9 per cent. of East Africans were annually hospitalised from venereal diseases alone.

Since the average strength of the East African troops in 1945 was less than $\frac{1}{5}$ th of their earlier strengths the smaller figures in the months of 1945, as given in the table on the next page are understandable.

A sudden increase in any month might have been the result of one of the following causes:—

- (a) Change over of units i.e. departure of fit and seasoned troops from Ceylon and their replacements by fresh troops;

- (b) Departure of that element of a unit from Ceylon which was found to be fit for duty elsewhere leaving the sick remnant behind thus accentuating the admissions from among the sick;
- (c) Increase in strength of troops; and
- (d) Employment of more efficient diagnosis or detection methods, etc.

Monthly admissions for venereal diseases among EAORs—1943-45.

Month			1943	1944	1945
January	..	..	Not available	241	50
February	..	..	„	203	48
March	..	..	„	247	37
April	..	..	„	281	55
May	..	..	„	180	52
June	..	..	„	173	37
July	..	..	„	148	36
August	..	..	„	166	26
September	..	..	220	93	33
October	..	..	172	91	11
November	..	..	164	90	16
December	..	..	169	46	2

The high figure in September 1943 was perhaps the result of increase in the strength of EAORs. No material variation was recorded from October 1943 to December 1943. The sudden increase in January 1944 was a result of better methods of inspection and detection employed at that time and was not due to any additional cases as such. But the higher admissions in March-April 1944 were due to a reduction in the strength of these troops, some of whom (those fit) were removed to other areas. As against this, the fall in November 1943 was perhaps due to the engagement of these troops in active manoeuvres, but the fall after May 1944 to the end of that year must have been due to the active propaganda and other preventive and curative measures adopted in this theatre. These measures seem to have caused a considerable decline in the incidence of venereal diseases particularly towards the end of 1945.

Dysentery caused sickness among the EAORs also of a high order. The relevant rates in the two years were 37 per 1,000 in 1944 and 17 per 1,000 in 1945 (Table 35). The rate for the East Africans was about 50 per cent. higher than the corresponding rate for "VCOs and IORs" in 1944 and about 100 per cent. higher than that of the NCs(E). A large percentage of cases of dysentery among the East Africans was reported to be of bacillary dysentery. But the type predominant generally in Ceylon was amoebic dysentery. Admissions due to dysentery among East Africans were 9 per cent. of sick admissions in 1944 and 4.4 per cent. in 1945.

The rate of incidence was 76 per 1,000 for four months in 1943. Calculated on the basis of this rate, its incidence for 1943 would be about seven times of that of 1944. It was reduced to 7 per cent. by 1945. Actual monthly admissions to hospitals, due to dysentery are given on page 259.

Monthly hospital admissions due to dysentery among EAORs.

Month			1943	1944	1945
January	..	..	..	137	12
February	..	..	..	110	11
March	..	..	..	113	13
April	..	..	..	89	14
May	..	..	..	54	4
June	..	..	..	22	7
July	..	..	..	48	4
August	..	..	..	65	2
September	..	..	50	63	4
October	..	..	325	91	2
November	..	..	561	84	..
December	..	..	694	34	2

The comparatively high figures in October, November and December 1943; July-August and October-November 1944; and March-April 1945 preclude the possibility of tracing a periodicity in the incidence of dysentery. The smaller figures of admissions in June and December of 1944 and the whole of 1945 may be due to the success of medical measures taken.

The incidence of malaria was comparatively light among the East Africans. Even in 1943, where a rate as high as 36 per 1,000 for the four months (September to December) was recorded the estimated annual rate based on it was about 57 per cent. of the corresponding rate for the VCOs and IORs. The rate of 19 per 1,000 in 1944, on the other hand, was only one-eighth of the Indian rate and that in 1945 was about one-fifth of it. It has been suggested that African troops possessed a marked racial immunity to malaria. It has also been said that among these troops pyrexia was never severe and was of very short duration, and even clinical symptoms vanished if a little rest and quinine were given. In terms of relative rate, malaria caused 12.5 per cent. of sick admissions in the four months of 1943; about 5 per cent. in 1944 and 4 per cent. in 1945 (Table 36).

The comparatively high figures, as indicated on page 260, round about December each year (due to north-east monsoon season) and May (due to south-west monsoons) may be noted. Admissions in December 1943 were exceptionally high. This was a period when very intensive exercises in jungle areas were being conducted. It may also be recalled that a large contingent of African troops had arrived in Ceylon only in June 1943, half of whom were stated to have been infected at a transit camp in East Africa shortly before embarkation for Ceylon. Figures for 1945 should be taken as having been produced by about one-fifth number of troops as against those in 1944. Even so, these figures are on the low side when malaria incidence in other troops is compared with them.

Diarrhoea too was not much of a problem with the East Africans, except seemingly in the four months of 1943 when a rate as high as 14

per 1,000 was recorded by it and it was responsible for about 5 per cent. of all sick admissions. In 1944, a rate of 17 per 1,000 was produced by this disease but its incidence fell down to a low figure of 5 per 1,000 by 1945.

Monthly Hospital Admissions from Malaria among EAORs—1943-45.

Month			1943	1944	1945
January	..	..	..	38	11
February	..	..	..	53	11
March	..	..	..	78	7
April	..	..	..	73	12
May	..	..	..	67	4
June	..	..	..	44	4
July	..	..	..	22	3
August	..	..	..	20	2
September	..	..	70	10	6
October	..	..	87	23	2
November	..	..	88	24	..
December	..	..	523	24	1

Another ailment which caused measureable morbidity among the East African troops was common cold. The rates of incidence were 16 in 1944 and 11 in 1945. The East African rate in 1944 was about 62 per cent. of the corresponding rate for the Indian troops, whereas that for 1945 was higher than that for the Indian troops by 31 per cent. It is known that the duration of hospitalisation by this disease is not long. Its frequency, however, was about 4 per cent. of all sick admissions to hospitals in 1944 were due to it. The corresponding figure for 1945 was 3 per cent.

The incidence of minor septic diseases was about the same as of common cold. The relevant rates were 16 per 1,000 in 1944 and about 10 per 1,000 in 1945 (Table 35).

A remarkable difference between the morbidity of the Indian and East African troops is provided by dengue. The rate of absolute incidence among the East Africans was 3 per 1,000 in 1944, against 16 of the Indian troops, and 1 per 1,000 in 1945 against 4 of the Indian troops (Tables 1 and 35). In the four months of 1943 a rate of 1.3 per 1,000 was registered among EAORs. The comparatively bigger rates among East Africans in 1943 and 1944 seem to have resulted from a single outbreak of this disease in December-January of this period. Twenty-one cases were admitted to hospitals from this disease in December 1943 and 25 in January 1944, which inflated unduly the otherwise usual monthly incidence of dengue among East Africans of about 0.1 per 1,000. The East Africans seemed to possess immunity against dengue.

During the four months of 1943, 104 cases of poliomyelitis were admitted and another 23 in 1944. Prompt action was taken by the General Headquarters (India) in despatching iron lungs to Ceylon. No casual connection was possible to trace in the outbreak of this disease. Among Indians its incidence was negligible.

An alarming outbreak of scrub typhus was foreseen by the medical authorities in Ceylon at the beginning of 1944, particularly among those East African troops who had at that time taken part in exercises in the south of Ceylon. A total number of 620 cases occurred among these troops in one month (January 1944). A few cases proved fatal but the epidemic was soon brought under control and no cases were reported in 1945. The incidence rate in 1944 was 25.1 per 1,000. It was reported that the outstanding feature of this outbreak was a large number of troops simultaneously infected in a limited area. Its virulence and the death rate were not high. Typhus caused 6 per cent. of sick admissions in this year. Only one case of typhus was admitted for the East Africans in the last four months of 1943. Most of the cases that were admitted were as a result of exercises in areas infested with this disease.

The East African troops showed sudden spurt of incidence from some diseases at a particular time without recording either a previous history from it or a follow up by a number of cases. For instance, rheumatic fever caused 107 admissions, at a rate of 4.3 per 1,000 strength in 1944 without having caused a single admission either in 1943 or in 1945. Similarly enteric group of fevers registered 120 admissions (5 per 1,000) in 1944 but only eight admissions in 1943 (four months) and none at all in 1945.

Other diseases that caused a few hospital admissions were cerebrospinal fever, hepatitis, sandfly fever, smallpox, influenza, pneumonia and heat effects. Of these, five cases in 1943, three in 1944 and only two in 1945 were admitted to hospital from cerebrospinal fever. Hepatitis (mostly infective) caused 51 admissions (at a rate of 2 per 1,000) in 1944 and only 19 in 1945. There were 16 and 11 admissions due to sandfly fever in 1944 and 1945 respectively. Smallpox registered one case among the East Africans in 1944 only. Influenza was more consistent in this respect having caused 15, 61 and 7 cases respectively during 1943, 1944 and 1945. Pneumonia was responsible for ten cases only in 1945. Similarly heat effects caused seven cases in 1944 only, two of which were due to heat exhaustion and five from heat stroke.

Diseases of ear, nose and throat and eye were also common in the East African troops but on a lower rate, each year, than among the VCOs and IORs.

A reference to Table 37 will indicate the comparative value of various groups of diseases in all causes, for the East African troops. Diseases of the "infective and parasitic" origin were responsible for as much as 55.5 per cent. of all admissions in 1943 (September to December); 43.6 per cent. in 1944; and 33 per cent. in 1945. The other specific groups which were responsible for high hospital admissions throughout, were digestive and respiratory diseases. The former group includes diarrhoea also. Its share in the three years was 6.3 per cent., 5.4 per cent. and 4.2 per cent. respectively. During 1944 and 1945, diseases of the respiratory system also were responsible for 11.3 and 8 per cent. of all admissions respectively.

Diseases of nervous system and sense organs (including ear, nose and throat diseases) caused 1.3 per cent. of all admissions in 1943; 3.8 per cent. in 1944 and 7.5 per cent. in 1945.

In all, there were nine admissions from among East Africans due to enemy-action injuries in 1943, 13 in 1944 and only 2 in 1945. Except for four cases in 1944, which were caused by shell wounds, all the other cases were of gun-shot wounds.

CONCLUSION

The sickness history of the East Africans differed materially from those of the Indian troops. The cause of highest sickness among them was venereal diseases and not malaria, because perhaps of their immunity to the latter. Dysentery was also responsible for heavier incidence rates than malaria among them. After malaria come, in that order, common cold, minor septic diseases, major septic diseases, diarrhoea, ear, nose and throat diseases and eye diseases. Epidemic outbreaks of poliomyelitis, typhus and rheumatic fever were reported. Dengue, scabies and skin diseases were not as much of a problem in these troops as among Indians. There were some cases also from cerebrospinal fever, enteric group of fevers, hepatitis, poliomyelitis and sandfly fever. The incidence of poliomyelitis was particularly heavy during 1943.

TABLE 35

Admissions to Hospitals—Annual rates per 1,000 strength: East African Other Ranks: SEAC (Ceylon Army Command).

Diseases				1943 (Sept. to Dec.)	1944	1945
(1)	<i>Infective and Parasitic diseases</i>					
	Cerebrospinal fever	..	..	0.23	0.12	0.46
	Dengue	..	..	1.27	3.12	0.91
	Diphtheria	..	..	..	0.04	..
	Dysentery	..	..	76.41	36.85	17.15
	Enteric group of fevers	..	..	0.37	4.86	..
	Infective hepatitis (Jaundice)	..	..	..	2.06	4.34
	Malaria	..	..	36.00	19.27	14.40
	Major septic diseases	..	..	..	0.57	0.46
	Minor septic diseases	..	..	11.39	15.99	9.60
	Mumps	..	..	1.08	1.58	..
	Oriental sore	..	..	0.05	0.04	..
	Poliomyelitis	..	..	4.87	0.93	..
	Sandfly fever	..	..	..	0.65	2.51
	Scabies	..	..	1.59	1.82	0.91
	Smallpox	..	..	..	0.04	..
	Tuberculosis	..	..	0.37	0.57	..
	Trachoma	..	..	0.05	1.25	..
	Typhus	..	..	0.05	25.11	..
	Venereal diseases	..	..	33.98	79.33	92.13
	Total	..	..	167.72	194.20	142.89

TABLE 35—(Contd.)

Diseases		1943 (Sept. to Dec.)	1944	1945
(2)	<i>Diseases of the Blood and Blood forming organs</i>			
	Nutritional and other anaemia ..	..	..	0.23
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>			
	Mental diseases	1.12	3.20	7.09
(4)	<i>Diseases of the Nervous system and sense organs</i>			
	ENT diseases .. ..	..	11.58	16.46
	Eye diseases other than trachoma ..	3.80	5.34	16.23
	Total	3.80	16.93	32.69
(5)	<i>Diseases of the Circulatory system</i>			
	Rheumatic fever .. ..	..	4.33	..
	Other circulatory diseases .. ..	..	0.93	2.06
	Total .. ..	..	5.26	2.06
(6)	<i>Diseases of the Respiratory system</i>			
	Common cold	10.45	16.04	10.97
	Tonsillitis	1.27	3.81	2.74
	Influenza	0.70	2.47	1.60
	Pneumonia .. ..	..	..	2.29
	Other respiratory diseases .. ..	..	28.22	16.92
	Total	12.42	50.54	34.52
(7)	<i>Diseases of the Digestive system</i>			
	Diarrhoea	13.78	16.93	5.03
	Other digestive diseases	5.34	7.17	13.26
	Total	19.12	24.09	18.29
(8)	<i>Diseases of the Skin and Cellular tissues</i>			
	Skin diseases .. ..	..	12.39	7.77
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>			
	NYD fever ... ..	..	15.51	17.60
	PUO	4.45	3.48	3.43
	Total	4.45	18.99	21.03
(10)	<i>All other diseases</i>	78.80	85.48	121.40
(11)	<i>All diseases</i>	287.44	411.09	387.97
(12)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>			
	Burns and scalds .. ..	..	..	..
	Other local injuries	14.58	33.65	45.04
	Total	14.58	33.65	45.04
(13)	<i>Accidents, Poisoning and violence (battle injuries)</i>			
	Gunshot wounds	0.42	0.36	0.46
	Shell wounds .. ..	..	0.16	..
	Total	0.42	0.53	0.46
(14)	<i>All cases</i>	302.44	445.27	433.47
(15)	<i>Deaths</i>	0.98	3.56	2.29

TABLE 36

Relative morbidity rates: East African Other Ranks: SEAC (Ceylon Army Command).

Diseases				1943 (Sept. to Dec.)	1944	1945
(1) <i>Infective and Parasitic diseases</i>						
Cerebrospinal fever				0.08	0.03	0.12
Dengue				0.44	0.76	0.24
Diphtheria .. ..				..	0.01	..
Dysentery				26.58	8.96	4.42
Enteric group of fevers				0.13	1.18	..
Infective hepatitis (Jaundice) .. ..				..	0.50	1.12
Malaria				12.52	4.69	3.71
Major septic diseases .. ..				..	0.14	0.12
Minor septic diseases				3.96	3.89	2.47
Mumps				0.37	0.38	..
Oriental sore				0.02	0.01	..
Poliomyelitis				1.70	0.23	..
Sandfly fever .. ..				..	0.16	0.65
Scabies				0.55	0.44	0.24
Smallpox .. ..				..	0.01	..
Tuberculosis				0.13	0.14	..
Trachoma				0.02	0.30	..
Typhus fever				0.02	6.11	..
Venereal diseases				11.82	19.30	23.75
Total				58.35	47.24	36.83
(2) <i>Diseases of the Blood and Blood forming organs</i>						
Nutritional and other anaemia .. ..				..	..	0.06
(3) <i>Mental, Psychoneurotic and Personality disorders</i>						
Mental diseases				0.39	0.78	1.83
(4) <i>Diseases of the Nervous system and sense organs</i>						
ENT diseases .. ..				..	2.82	4.24
Eye diseases other than trachoma				1.32	1.30	4.18
Total				1.32	4.12	8.43
(5) <i>Diseases of the Circulatory system</i>						
Rheumatic fever .. ..				..	1.05	..
Other circulatory diseases .. ..				..	0.23	0.53
Total .. ..				..	1.28	0.53
(6) <i>Diseases of the Respiratory system</i>						
Common cold				3.64	3.90	2.83
Tonsillitis				0.44	0.93	0.71
Influenza				0.24	0.60	0.41
Pneumonia .. ..				..	..	0.59
Other respiratory diseases .. ..				..	6.87	4.36
Total				4.22	12.29	8.90

TABLE 36—(Contd.)

Diseases		1943 (Sept. to Dec.)	1944	1945
(7)	<i>Diseases of the Digestive system</i>			
	Diarrhoea	4.79	4.12	1.30
	Other digestive diseases ..	1.86	1.74	3.42
	Total	6.65	5.86	4.71
(8)	<i>Diseases of the Skin and Cellular tissue</i>			
	Skin diseases .. .. .	..	3.01	2.00
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>			
	NYD fever .. .. .	..	3.77	4.54
	PUO	1.55	0.85	0.88
	Total	1.55	4.62	5.42
(10)	<i>All other diseases</i>	27.41	20.79	31.29
(11)	<i>All diseases</i>	100.00	100.00	100.00

TABLE 37

Relative casualty rates: East African Other Ranks: SEAC (Ceylon Army Command).

Specialist groups		1943 (Sept. to Dec.)	1944	1945
(1)	Infective and parasitic diseases ..	55.46	43.62	32.96
(2)	Diseases of the blood and blood forming organs .. .. .	..	..	0.05
(3)	Mental, psychoneurotic and personality disorders	0.37	0.72	1.63
(4)	Diseases of the nervous system and sense organs	1.25	3.80	7.54
(5)	Diseases of the circulatory system ..	..	1.18	0.47
(6)	Diseases of the respiratory system ..	4.10	11.35	7.97
(7)	Diseases of the digestive system ..	6.32	5.41	4.22
(8)	Diseases of the skin and cellular tissue .. .. .	..	2.78	1.79
(9)	Symptoms, senility and ill-defined conditions	1.47	4.26	4.82
(10)	All other diseases	26.05	19.20	28.01
(11)	All diseases	95.04	92.32	89.50
(12)	Non-battle injuries	4.82	7.56	10.39
(13)	Battle injuries	0.14	0.12	0.11
(14)	All cases	100.00	100.00	100.00

Section XV

ALL TROOPS IN CEYLON

In all 36,704 cases were admitted to hospitals from all troops in Ceylon in 1942, 62,761 cases in 1943, 59,557 cases in 1944 and 36,984 cases in 1945. If their incidence rates are struck, they show that of every 1,000 of troops about 751 were admitted to hospitals during 1942, 695 in 1943, 579 in 1944 and 451 in 1945 (Table 38). The differences in these rates are not statistically significant in any year. These rates are the products of 1,990 daily cases in hospitals in 1942, 2,929 in 1943, 2,926 in 1944 and 1,691 in 1945. The figures given above include only those who were admitted to hospitals for treatment, and do not include patients who suffered from minor ailments, and visited the unit medical inspection rooms or were treated in other medical units. Of the number of total cases due to diseases the incidence (per cent.) of malaria, venereal diseases, dengue, diarrhoea and dysentery was as follows:—

Year		Malaria	Venereal Diseases	Dengue	Diarrhoea	Dysentery
1942	..	21.0	6.8	4.1	3.3	2.0
1943	..	23.9	5.7	2.2	2.9	5.2
1944	..	16.6	7.2	2.1	2.8	4.4
1945	..	15.5	6.6	0.8	2.6	3.2

Their rates of absolute incidence are given in Table 38.

The percentage shares of groups of causes, in total causes are given in Table 39. As in the case of most of the individual races of troops, the three most important groups of causes of morbidity for all forces, each year, were, 'infective and parasitic diseases'; diseases of the 'digestive system' and diseases of the 'respiratory system'. The percentage admissions due to different groups were as follows:—

Year		Infective and parasitic diseases	Diseases of the digestive system	Diseases of the respiratory system	Diseases of Nervous system and sense organs	Skin* Diseases
1942	..	43.6	7.8	6.7	1.6	..
1943	..	44.2	7.1	6.4	1.4	..
1944	..	38.1	7.2	11.5	4.2	3.5
1945	..	34.7	7.8	12.5	6.5	4.4

*Information available for 1944 and 1945 only.

Mortality rate from all causes was 1.7 per 1,000 in 1942, 2.1 in 1943, 2.6 in 1944 and 1.9 in 1945.

TABLE 38

*Admissions to Hospitals—Annual rates per 1,000 strength: All troops: SEAC
(Ceylon Army Command).*

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic Diseases</i>				
Cerebrospinal fever ..	0.22	0.14	0.21	0.27
Cholera .. ..	..	..	0.03	..
Dengue	30.60	15.44	11.85	3.61
Diphtheria	0.59	0.15	0.53	0.10
Dysentery	14.90	36.11	25.28	14.28
Enteric group of fevers ..	0.86	0.22	1.38	0.11
Infective hepatitis (Jaundice)	5.46	3.01	4.88	4.40
Malaria	155.97	166.12	96.14	69.95
Major septic diseases ..	..	..	0.84	0.77
Minor septic diseases ..	53.19	29.19	18.78	15.50
Mumps	3.56	2.35	2.15	4.80
Oriental sore	0.25	0.08	0.12	0.02
Pediculosis .. ..	..	..	0.02	..
Plague .. ..	..	..	0.03	..
Poliomyelitis .. ..	..	1.38	0.33	0.01
Sandfly fever	1.00	0.48	0.88	0.17
Scabies	7.39	8.36	6.96	11.60
Smallpox	0.02	0.03	0.05	0.10
Tuberculosis	1.72	3.41	1.27	0.84
Trachoma	0.92	0.62	0.67	0.24
Typhus fever	0.08	0.23	6.47	0.04
Venereal diseases	51.06	39.82	41.79	29.63
Total	325.77	307.17	220.68	156.44
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri .. ..	..	..	0.10	0.04
Scurvy .. ..	..	..	0.25	0.51
Total .. ..	..	..	0.35	0.55
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	1.46
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases	2.72	2.65	3.82	4.03
(5) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases .. ..	..	..	15.80	17.21
Eye diseases other than trachoma	11.64	10.11	8.78	12.15
Total	11.64	10.11	24.58	29.36

TABLE 38—(Contd.)

Diseases		1942	1943	1944	1945
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	0.02	0.13	1.14	0.33
	Other circulatory diseases	0.04	0.06	3.36	0.76
	Total ..	0.06	0.19	4.50	1.08
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	27.61	28.88	32.68	27.33
	Tonsillitis ..	11.87	5.80	4.94	5.64
	Pharyngitis ..	6.94	2.88	..	..
	Influenza ..	6.16	7.25	3.21	3.03
	Pneumonia ..	..	..	..	1.83
	Other respiratory diseases	..	..	25.77	18.43
	Total ..	52.58	44.81	66.60	56.26
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	24.95	20.18	16.42	11.52
	Other digestive diseases	33.48	29.45	25.29	23.71
	Total ..	58.43	49.63	41.72	35.23
(9)	<i>Diseases of the Skin and Cellular tissue</i>				
	Skin diseases ..	..	..	20.51	20.01
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	44.98	27.07
	PUO ..	2.91	3.76	1.22	0.61
	Total ..	2.91	3.76	46.20	27.68
(11)	<i>All other diseases</i> ..	248.33	238.85	109.08	86.37
(12)	<i>All diseases</i> ..	702.45	657.17	538.05	418.48
(13)	<i>Accidents, Poisoning and violence (non battle injuries)</i>				
	Burns and scalds ..	..	..	..	1.06
	Other local injuries ..	46.93	37.22	40.77	31.10
	Total ..	46.93	37.22	40.77	32.16
(14)	<i>Accidents, poisoning and violence (battle injuries)</i>				
	Bomb wounds ..	0.53	..	0.03	..
	Gunshot wounds ..	1.08	0.39	0.22	0.07
	Shell wounds ..	0.18	0.05	0.06	..
	Total ..	1.80	0.44	0.31	0.07
(15)	<i>All cases</i> ..	751.18	694.83	579.14	450.71
(16)	<i>Deaths</i> ..	1.68	2.09	2.56	1.94

TABLE 39

Relative casualty rates: All troops: SEAC (Ceylon Army Command).

Specialist Groups	1942	1943	1944	1945
(1) Infective and parasitic diseases	43.64	44.21	38.10	34.71
(2) Allergic-endocrine system, metabolic and nutritional diseases ..	..	..	0.06	0.12
(3) Diseases of the blood and blood forming organs ..	..	..	..	0.32
(4) Mental, psychoneurotic and personality disorders	0.36	0.38	0.66	0.89
(5) Diseases of the nervous system and sense organs	1.55	1.45	4.24	6.51
(6) Diseases of the circulatory system	0.01	0.03	0.78	0.24
(7) Diseases of the respiratory system	6.72	6.44	11.51	12.48
(8) Diseases of the digestive system	7.78	7.14	7.20	7.82
(9) Diseases of the skin and cellular tissue ..	..	..	3.54	4.44
(10) Symptoms, senility and ill-defined conditions ..	0.39	0.54	7.98	6.14
(11) All other diseases ..	33.06	34.37	18.84	19.16
(12) All diseases ..	93.51	94.58	92.91	92.84
(13) Non-battle injuries ..	6.25	5.36	7.04	7.14
(14) Battle injuries ..	0.24	0.06	0.05	0.02
(15) All cases	100.00	100.00	100.00	100.00

Section XVI

RACE DIFFERENTIALS

Tables 40 to 43 give differentials, based on absolute rates of incidence of specific diseases, in respect of troops other than Indian troops whose rates have been treated as the standard of calculation. The totals given in the tables refer to all troops in Ceylon of each group. The differential indices in each case show the prevalence of diseases among the particular racial group as compared to their prevalence among Indian troops. The underlying assumption in these calculations and comparisons has been that the racial groups are generally comparable and that each group is a representative sample of its whole. The information on age distribution, the location etc. is not available. Such information could enable standardisation of morbidity rates and eliminate possible errors. Since full data in that regard are not available comparisons based on crude differentials are given. All diseases which caused absolute incidence rates of 10 per 1,000 or more have been treated as major causes of morbidity. These differentials between the various troops involved are given for each year.

1942

Complete information is available only for Indian and British troops. Of the major diseases, from the point of incidence, tonsillitis, dengue and venereal diseases were about 6, 5 and 2.3 times more prevalent among the British than Indian troops respectively.

The incidence of tonsillitis, dengue, venereal diseases, common cold, dysentery, hepatitis, malaria, minor septic diseases and diarrhoea was higher in British than Indian troops by 6 times, 5 times, 2.3 times, 67 per cent., 48 per cent., 43 per cent., 38 per cent., 24 per cent. and 12 per cent. respectively.

Of the remaining available specific causes, the largest difference was observed in cases of heat exhaustion. Its incidence among the British troops was about 17 times that among the Indian troops. Such difference among the British troops was three times for heat stroke. In case of mental diseases the incidence among British troops was also twice that in Indian troops. The incidence among British troops was also about 75 per cent. higher for enteric fevers, 58 per cent. for sandfly fever and 23 per cent. for influenza. In contrast to these figures oriental sore was prevalent among the British troops to the extent of only 1 per cent. of the rate among Indian troops, mumps to 2 per cent. and tuberculosis to 40 per cent. only, and there was no case of typhus among them. Scabies, pharyngitis and eye diseases were more common in Indian than British troops by about 4 times, $2\frac{1}{2}$ times and 2 times respectively.

British troops on the whole suffered 25 per cent. higher morbidity than Indian troops from all causes (8.6 times) in respect of war wounds.

1943

British troops suffered at five times the Indian rate from dengue, 3.7 times from tonsillitis, 1.9 times from common cold, 1.3 times each from malaria and venereal diseases and 1.2 times from dysentery.

The incidence rate for the British troops was 1/7th of the Indian rate from tuberculosis, 1/4th from scabies, 41 per cent. of the Indian rate from eye diseases, 71 per cent. from minor septic diseases and 73 per cent. from diarrhoea (Table 41).

For some of the other diseases, the incidence among the British troops was higher by 7.5 times from poliomyelitis, 6.75 times from heat exhaustion, 6.23 times from heat stroke, 3.6 times from enteric fevers, 2.5 times from typhus, 1.6 times from hepatitis, 1.3 times from mental diseases and 1.15 times from influenza. It was lower among them than the Indian troops by 86 per cent. from mumps, by 71 per cent. from sandfly fever and by 56 per cent. from pharyngitis.

British troops suffered 13 per cent. higher morbidity than the Indian troops from all diseases and all causes separately but 28 per cent. less from enemy action injuries.

Incidence of influenza among the Ceylonese troops was very high when compared to Indian troops. It was 59 times more prevalent among the former than among the latter. Other diseases in respect of which Ceylonese had higher rates were common cold (9 times), diarrhoea (36 per cent. higher), dysentery (13 per cent. higher) and malaria (12 per cent. higher). They, however, had lower rates than the Indian troops, from tuberculosis by 97 per cent., dengue by 88 per cent., venereal diseases by 46 per cent., scabies by 35 per cent., minor septic diseases by 34 per cent. and eye diseases by 6 per cent. (Table 41).

Of the other diseases, mumps were 9.5 times more prevalent among the Ceylonese than among the Indian troops, enteric fevers 44 per cent. more and tonsillitis 16 per cent. more among the former than among the latter. As against these the morbidity rates for pharyngitis, dermal leishmaniasis, typhus, sandfly fever, mental diseases and hepatitis among Ceylonese troops were lower than Indian by 88 per cent., 82 per cent., 65 per cent., 63 per cent., 14 per cent., and 12 per cent. respectively.

On the whole, the incidence from all causes was 19 per cent. higher among the Ceylonese troops in 1943. They did not register any admissions from poliomyelitis, heat exhaustion and heat stroke.

1944

British troops continued to show higher rates of incidence of the order of 3.45 times the Indian from dengue, 2.89 times from tonsillitis, 2.25 times from skin diseases and 1.86 times from hepatitis. The higher incidence among them from some other diseases was 32 per cent. from diarrhoea, 31 per cent. from minor septic diseases, 19 per cent. from dysentery and 6 per cent. from venereal diseases. They, however, suffered at very much lower rates than the Indian troops from some other causes. For instance, scabies, common cold, malaria, eye diseases and ear, nose and throat diseases among them recorded a rate which was 34 per cent., 50 per cent., 52 per cent., 53 per cent. and 79 per cent. of the Indian rate respectively.

Among the minor diseases, typhus was 18.8 times more common among the British troops and enteric fevers 13.3 times than among the

Indian troops. Tuberculosis, mental diseases and poliomyelitis cases were 76 per cent., 15 per cent. and 14 per cent. more frequent among the British troops.

There was no case of dermal leishmaniasis among the British troops and no case of heat effects among Indians in 1944.

Taking all causes together, the incidence in 1944 was about equal between Indian and British troops (Table 42).

Ceylonese troops had higher incidence rates than the Indian troops by 63.65 times in respect of influenza, by 3.38 times from common cold, 79 per cent. from diarrhoea, 30 per cent. from scabies, 29 per cent. from eye diseases and 26 per cent. from skin diseases. But they had lower incidence rates than those for the Indian troops in respect of dengue by 88 per cent., minor septic diseases by 39 per cent., venereal diseases by 35 per cent., ear, nose and throat diseases by 29 per cent., dysentery by 25 per cent. and malaria by 91 per cent.

Among the minor diseases Ceylonese had higher rates in respect of enteric fevers and mumps only. The former were 4.83 times more frequent and the latter 3.96 times. The diseases from which they had lower than Indian rates were: oriental sore by 85 per cent., typhus 77 per cent., tuberculosis 44 per cent., sandfly fever 19 per cent., tonsillitis 18 per cent., mental diseases 14 per cent. and hepatitis 10 per cent.

No plague or heat stroke cases occurred among the Indian troops in 1944. On the other hand Ceylonese did not suffer from poliomyelitis. On the whole, Ceylonese suffered at 22 per cent. higher rate of morbidity from all causes than the Indian troops.

The morbidity among East Africans from all causes was 33 per cent. lower than the corresponding Indian rate. Among the major diseases they had higher rates for typhus (147.7 times the Indian rate), venereal diseases (2 times), dysentery (49 per cent. higher) and diarrhoea (22 per cent. higher). As for the remaining major causes, the largest difference between these troops was observed in respect of malaria which had a rate 88 per cent. lower among the East Africans than the Indians. The other diseases which registered lower African rates similarly were scabies (82 per cent.), dengue (80 per cent.), ear, nose and throat diseases (54 per cent.), eye diseases (47 per cent.), skin diseases (41 per cent.), common cold (38 per cent.) and minor septic diseases (27 per cent.).

Among the minor causes, the incidence of enteric fevers was 81 times more among the East Africans, influenza 14.53 times, poliomyelitis 2.66 times and mumps 14 per cent. than Indian troops. At the other extreme were dermal leishmaniasis, which was only 7 per cent., tuberculosis 34 per cent., hepatitis 37 per cent., sandfly fever 41 per cent., mental diseases 71 per cent., and tonsillitis 84 per cent. of the corresponding Indian rate.

1945

Unlike the East Africans, British troops had registered higher incidence rates from more causes than that done by Indian troops in

1945 also. Their overall morbidity was 19 per cent. higher in this year than the Indian morbidity (Table 43).

Among the major diseases, dengue was 5.24 times more frequent among them, tonsillitis 3.54 times and skin diseases 2.94 times. Diarrhoea was 183 per cent., mental diseases 170 per cent., dysentery 155 per cent., venereal diseases 129 per cent., and common cold 116 per cent. of the corresponding Indian rate. Four major diseases from which British troops registered lower rates than the Indian troops were scabies at 32 per cent. of the latter, eye diseases at 44 per cent., malaria at 56 per cent. and ear, nose and throat diseases at 64 per cent. of the corresponding Indian rate.

In the minor causes, hepatitis and tuberculosis had rates among the British troops which were 49 per cent. and 4 per cent. higher respectively than the corresponding Indian rate. On the other hand, the incidence of mumps and influenza among the British troops was only 13 per cent. and 63 per cent. respectively of the Indian rate.

Typhus enteric fevers and poliomyelitis caused no case among any other troops except the British in 1945. There were no cases among the Indians from sandfly fever and heat effects.

As before, the largest differential between Ceylonese and Indian troops was observed for influenza. In 1945, its incidence rate was 27.6 times the Indian rate. Other diseases which had higher Ceylonese rates were common cold (9.4 times), mumps (4.5 times), malaria (65 per cent. higher), diarrhoea (63 per cent. higher), scabies (9 per cent. higher), skin diseases (7 per cent. higher) and eye diseases (3 per cent. higher). On the other side of this picture were minor septic diseases dysentery, ear, nose and throat diseases, and venereal diseases which were less frequent among the Ceylonese by 46 per cent., 40 per cent., 25 per cent. and 12 per cent. respectively than Indian troops.

Among the minor causes, Ceylonese rates were higher by 51 per cent. from tonsillitis only. Their rates from dengue, typhus, mental diseases, tuberculosis and hepatitis were also lower than the corresponding Indian rates by 72 per cent., 71 per cent., 58 per cent., 20 per cent. and 14 per cent. respectively.

The comparative state of health of the Indian troops against that of the Ceylonese may also be seen in their figures of absolute incidence from all causes. In this respect the Ceylonese morbidity rate was 28 per cent. higher than the Indian rate.

The overall morbidity of East African troops was 14 per cent. lower than that of the Indian troops in 1945. Among the major causes there were only two from which higher African rates were registered, viz., venereal diseases and common cold. The rate from the former was 2.5 times the Indian rate, and that for the latter 31 per cent. higher than the Indian rate. From rest of them Indian rates were consistently higher in 1945. For example, the rate from scabies for the Ceylonese was only 5 per cent. of the Indian, from malaria only 22 per cent., from skin diseases 36 per cent., from ear, nose and throat diseases only 63 per

cent., from eye diseases 87 per cent. and from dysentery 91 per cent. of the Indian rate.

In minor causes, influenza was 4.57 times more widely prevalent among the Africans and mental diseases 21 per cent. more frequent. Whereas, dengue was present in them at 24 per cent., tonsillitis at 55 per cent. and hepatitis at 74 per cent. of the Indian rate.

TABLE 40

Race differentials based on absolute rates: 1942.

Diseases	Indian	British	Differentials
Common cold	17.64	29.49	1.67
Dengue	16.99	82.28	4.84
Dysentery	19.09	28.24	1.48
Enteric group of fevers ..	0.13	2.28	1.75
Infective hepatitis (Jaundice) ..	6.71	9.63	1.43
Malaria	193.63	267.22	1.38
Minor septic diseases ..	71.37	88.61	1.24
Mumps	2.11	0.37	0.02
Oriental sore	0.53	0.07	0.01
Sandfly fever	1.25	1.98	1.58
Scabies	15.73	4.49	0.28
Tuberculosis	3.49	1.40	0.40
Typhus fever	0.26	..	..
Venereal diseases	46.28	104.93	2.27
Mental diseases	2.63	5.51	2.06
ENT diseases .. ..	..	..	..
Eye diseases including trachoma ..	22.72	11.17	0.49
Tonsillitis	5.40	32.72	6.06
Pharyngitis	14.55	5.88	0.40
Influenza	1.97	2.43	1.23
Diarrhoea	31.14	34.93	1.12
Heat exhaustion	0.07	1.18	16.85
Heat stroke	0.07	0.22	3.14
Non-battle injuries	64.85	66.40	1.02
Battle injuries	0.66	5.66	8.58
All cases	928.70	1,151.48	1.24

TABLE 41

Race differentials based on absolute rates: 1943.

Diseases	Indian	British	Differentials	Ceylonese	Differentials
Common cold ..	8.93	16.99	1.90	80.03	8.96
Dengue ..	10.97	55.56	5.06	1.35	0.12
Dysentery ..	22.57	25.81	1.14	25.53	1.13
Enteric group of fevers ..	0.09	0.32	3.55	0.13	1.44
Infective hepatitis (Jaundice) ..	3.58	5.79	1.62	3.16	0.88
Malaria ..	187.89	238.22	1.27	210.76	1.12
Minor septic diseases ..	44.10	31.43	0.71	29.23	0.66
Mumps ..	0.78	0.11	0.14	7.40	9.49
Oriental sore ..	0.22	..	..	0.04	0.18
Poliomyelitis ..	0.13	0.97	7.46	..	..
Sandfly fever ..	1.12	0.32	0.29	0.41	0.37
Scabies ..	15.84	4.06	0.26	10.29	0.65
Tuberculosis ..	9.92	1.51	0.15	0.27	0.03
Typhus fever ..	0.26	0.65	2.50	0.09	0.35
Venereal diseases ..	44.23	55.56	1.26	23.91	0.54
Mental diseases ..	2.93	3.79	1.29	2.53	0.86
Eye diseases including trachoma ..	16.10	6.60	0.41	15.20	0.94
Tonsillitis ..	4.10	15.09	3.68	4.74	1.16
Pharyngitis ..	6.82	2.98	0.44	0.81	0.12
Influenza ..	0.47	0.54	1.15	27.74	59.02
Diarrhoea ..	22.05	16.01	0.73	30.09	1.36
Heat exhaustion ..	0.04	0.27	6.75	..	..
Heat stroke ..	0.13	0.81	6.23	..	..
Non-battle injuries ..	46.95	49.94	1.06	41.14	0.88
Battle injuries ..	0.82	0.59	0.72	0.04	0.05
All cases ..	748.33	844.24	1.13	892.68	1.19

TABLE 42

Race differentials based on absolute rates: 1944.

Diseases	Indian	British	Differ- entials	Ceylo- nese	Differ- entials	East Africans	Differ- entials
Common cold ..	25.69	12.83	0.50	86.92	3.38	16.04	0.62
Dengue ..	15.77	54.49	3.45	1.95	0.12	3.12	0.20
Dysentery ..	24.64	29.32	1.19	18.57	0.75	36.85	1.49
Enteric group of fevers ..	0.06	0.80	13.33	0.29	4.83	4.86	81.00
Infective hepatitis (Jaundice) ..	5.57	10.36	1.86	5.01	0.90	2.06	0.37
Malaria ..	154.30	79.91	0.52	140.48	0.91	19.27	0.12
Minor septic diseases	21.74	28.60	1.31	13.31	0.61	15.99	0.73
Mumps ..	1.39	0.08	0.06	5.51	3.96	1.58	1.14
Oriental sore ..	0.52	..	..	0.08	0.15	0.04	0.07
Plague ..	..	..	..	0.12	..	..	..
Poliomyelitis ..	0.35	0.40	1.14	..	..	0.93	2.66
Sandfly fever ..	1.57	0.88	0.56	1.28	0.81	0.65	0.41
Scabies ..	10.03	3.43	0.34	13.01	1.30	1.82	0.18
Tuberculosis ..	1.68	2.95	1.76	0.95	0.56	0.57	0.34
Typhus fever ..	0.17	3.19	18.76	0.04	0.23	25.11	147.71
Venereal diseases ..	39.43	41.75	1.06	25.57	0.65	79.33	2.01
Mental diseases ..	4.52	5.18	1.15	3.90	0.86	3.20	0.71
ENT diseases ..	24.99	19.84	0.79	17.78	0.71	11.58	0.46
Eye diseases includ- ing trachoma ..	12.52	6.62	0.53	16.17	1.29	6.59	0.53
Tonsillitis ..	4.52	13.07	2.89	3.69	0.82	3.81	0.84
Influenza ..	0.17	0.16	0.94	10.82	63.65	2.47	14.53
Diarrhoea ..	13.86	18.24	1.32	24.79	1.79	16.93	1.22
Skin diseases ..	20.99	47.24	2.25	26.45	1.26	12.39	0.59
Heat exhaustion ..	..	0.08	..	..	..	0.08	..
Heat stroke ..	..	1.04	..	0.08	..	0.20	..
Non-battle injuries	51.38	53.62	1.04	47.83	0.93	33.65	0.65
Battle injuries ..	0.35	0.80	2.29	0.12	0.34	0.53	1.51
All cases ..	661.93	661.17	1.00	806.55	1.22	445.27	0.67

TABLE 43

Race differentials based on absolute rates: 1945.

Diseases	Indian	British	Differentials	Ceylone	Differentials	East Africans	Differentials
Common cold ..	8.36	9.73	1.16	78.49	9.39	10.97	1.31
Dengue ..	3.76	19.69	5.24	1.07	0.28	0.91	0.24
Dysentery ..	18.75	29.09	1.55	11.29	0.60	17.15	0.91
Enteric group of fevers ..	..	0.34	..	..	..	..	..
Infective hepatitis (Jaundice) ..	5.86	8.73	1.49	5.05	0.86	4.34	0.74
Malaria ..	64.48	35.91	0.56	106.42	1.65	14.40	0.22
Minor septic diseases	24.47	25.17	1.03	13.18	0.54	9.60	0.39
Mumps ..	2.65	0.34	0.13	11.99	4.52	..	..
Oriental sore ..	0.07	..	..	..	..	..	..
Poliomyelitis ..	..	0.11	..	..	..	..	..
Sandfly fever ..	..	0.34	..	..	..	2.51	..
Scabies ..	16.45	5.26	0.32	17.95	1.09	0.91	0.05
Tuberculosis ..	1.18	1.23	1.04	0.94	0.80	..	..
Typhus fever ..	0.14	..	..	0.04	0.29	..	..
Venereal diseases ..	36.81	47.55	1.29	32.45	0.88	92.13	2.50
Mental diseases ..	5.86	9.96	1.70	2.46	0.42	7.09	1.21
ENT diseases ..	26.09	16.78	0.64	19.55	0.75	16.46	0.53
Eye diseases including trachoma ..	18.62	8.17	0.44	19.26	1.03	16.23	0.87
Tonsillitis ..	5.02	17.79	3.54	7.60	1.51	2.74	0.55
Influenza ..	0.35	0.22	0.63	9.65	27.57	1.60	4.57
Diarrhoea ..	11.36	20.81	1.83	18.52	1.63	5.03	0.44
Skin diseases ..	21.61	63.55	2.94	23.04	1.07	7.77	0.36
Heat exhaustion ..	..	0.34	..	..	..	..	..
Heat stroke ..	..	0.11	..	..	..	..	..
Non-battle injuries	42.87	43.97	1.03	41.81	0.97	45.04	1.05
Battle injuries ..	0.07	0.22	3.14	0.04	0.55	0.46	6.55
All cases ..	506.45	602.04	1.19	647.21	1.28	433.47	0.86

Section XVII

DIFFERENTIAL INDICES RACE BY RACE

The figures of differentials of Tables 40 to 43 have been partly recast in Tables 44 to 46, one each respectively for British, Ceylonese and East African troops. Each of these tables is for the whole period for which information, regarding each racial group, has been available.

An increase in a differential index for a disease from one year to another is indicative of either a relatively higher incidence in that year from that disease for the racial group under consideration, or a relatively larger lowering in its incidence for the Indian troops. All the same, an increase in the index would be indicative of a worsening situation of health of the racial group under consideration and vice-versa.

British: The figures in Table 44 show that a spectacular improvement in the British morbidity from common cold and malaria vis-a-vis the Indian incidence took place in 1944 which, however, was not maintained in 1945 in respect of common cold. In 1944 British incidence from these diseases was lower than that for Indian troops. Some improvement in minor septic diseases, venereal diseases, mental diseases and tonsillitis was recorded after 1942. But all these diseases registered high incidence, each year, for British troops. The only major diseases from which consistently lower incidence for British troops was reported were ear, nose and throat diseases and eye diseases.

Diarrhoea had lower British rates in 1943 only, otherwise its differential index continued to increase over the period.

Ceylonese: (Table 45). The major diseases from which Ceylonese consistently presented lower than Indian incidence rates were minor septic diseases, venereal diseases, ear, nose and throat diseases and to a larger extent dysentery and scabies. A constant improvement in the index for the minor septic diseases occurred all over the three years; the reverse being the case with venereal diseases. Scabies had lower than Indian rates during 1943 and 1945 but higher in 1944.

The Ceylonese index from common cold improved from 9 to 3.4 and in 1944 and fell to a greater figure of 9.4 in 1945.

Dysentery was prevalent among the Ceylonese at a greater rate (113 per cent.) in 1943 but improved after that till 1945. In 1944 and 1945 its rates were lower than the corresponding Indian rates.

Malaria rates were higher among the Ceylonese in 1943 and 1945 but lower in 1944.

Mumps, diarrhoea and skin diseases registered greater incidence among the Ceylonese throughout.

Eye diseases were less frequent among the Ceylonese than the Indians in 1943 but more frequent afterwards.

The most striking difference in the incidence between the Ceylonese and Indian troops is provided by influenza. The former had always higher rates than the latter from it. In 1943 it was 59 times more, in 1944, 64 times and in 1945, 28 times than the later.

East Africans: (Table 46). The major diseases in respect of which East African troops always registered lower than Indian rates of incidence were malaria, minor septic diseases, ear, nose and throat diseases, eye diseases and skin diseases. (It might here be mentioned that skin diseases in 1945 and eye diseases in 1944 were not strictly speaking major causes of morbidity among the East African troops because, according to what has been stated at an earlier stage of this section, their incidence rates were lower than 10 per 1,000 in those years). Of the others, common cold had lower East African rates in 1944 and higher in 1945 and dysentery and diarrhoea presented just the reverse picture. (Again diarrhoea had not remained a major cause of morbidity for East Africans in 1945 by the standard laid down here).

Venereal diseases were always prevalent in the East Africans at higher than Indian rates. The East African rate in respect of typhus remained high. The latter disease was prevalent among the East Africans at a rate which was 148 times more than the corresponding Indian rate in 1944. No figures are available for 1945.

TABLE 44

Differentials for British troops from major causes.

Diseases	1942	1943	1944	1945
Common cold	1.67	1.90	0.50	1.16
Dengue	4.84	5.06	3.45	5.24
Dysentery	1.48	1.14	1.19	1.55
Infective hepatitis (Jaundice)	1.43	1.62	1.86	1.49
Malaria	1.38	1.27	0.52	0.56
Minor septic diseases ..	1.24	0.71	1.31	1.03
Venereal diseases ..	2.27	1.26	1.06	1.29
Mental diseases	2.06	1.29	1.15	1.70
ENT diseases .. ..	..	..	0.79	0.64
Eye diseases including tra- choma	0.49	0.41	0.53	0.44
Tonsillitis	6.06	3.68	2.89	3.54
Diarrhoea	1.12	0.73	1.32	1.33
Skin diseases .. ..	..	..	2.25	2.94

TABLE 45

Differentials for Ceylonese troops from major causes.

Diseases	1943	1944	1945
Common cold	8.96	3.38	9.39
Dysentery	1.13	0.75	0.60
Malaria	1.12	0.91	1.65
Minor septic diseases ..	0.66	0.61	0.54
Mumps	9.49	3.96	4.52
Scabies	0.65	1.30	1.09
Venereal diseases	0.54	0.65	0.88
Eye diseases including trachoma..	0.94	1.29	1.03
Influenza	59.02	63.65	27.57
Diarrhoea	1.36	1.79	1.63
Skin diseases .. ..	..	1.26	1.07
ENT diseases .. ..	..	0.71	0.75

TABLE 46

Differentials for East African troops from major causes.

Diseases	1944	1945
Common cold	0.62	1.31
Dysentery	1.49	0.91
Malaria	0.12	0.22
Minor septic diseases ..	0.73	0.39
Typhus fever	147.71	..
Venereal diseases	2.01	2.50
ENT diseases	0.46	0.63
Diarrhoea	1.22	0.44
Skin diseases	0.59	0.36
Eye diseases including trachoma ..	0.53	0.87

CHAPTER IV

Morbidity and Mortality in the India Command

The information set forth in this chapter has been taken from AFA 32—annual return of sick and wounded, which in turn is based on AFA 31 (monthly return of sick in hospitals and barracks). Diseases have been classified according to groups shown in the “Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, Volumes I and II”. A section each will be devoted to a discussion of morbidity and mortality of different categories of troops.

Section I

VCOs AND IORs

The following table depicts general morbidity and mortality among VCOs and IORs in the India Command.

Morbidity and mortality among VCOs and IORs in the India Command.

	1939	1940	1941	1942	1943	1944	1945
Admission rate per 1,000 strength in hospitals and barracks ..	1,751	2,021	2,200	2,397	2,301	2,106	1,931
Admission rate per 1,000 strength in hospitals ..	454	549	616	746	743	733	584
Admission rate per 1,000 strength in barracks ..	1,297	1,472	1,584	1,651	1,558	1,373	1,347
Ratio of hospital admissions to barrack admissions ..	1:3	1:3	1:3	1:2	1:2	1:2	1:2
Combined rate per 1,000 strength of average constantly sick in hospitals and barracks ..	34.60	36.39	40.17	40.24	44.38	57.03	40.41
Average constantly sick per 1,000 strength in hospitals ..	16.25	17.51	21.39	24.53	29.94	43.42	29.80
Average constantly sick rate per 1,000 strength in barracks ..	18.35	18.88	18.78	15.71	14.44	13.61	10.61
Death rate per 1,000 strength in hospitals ..	2.12	2.11	3.48	4.99	4.12	3.30	2.62
Case fatality rate per cent.	0.47	0.38	0.57	0.67	0.55	0.45	0.45
Average sick time to each soldier in days ..	5.93	6.41	7.80	8.96	10.93	15.89	13.83
Average duration of each illness in days ..	13.06	11.68	12.68	12.00	14.71	21.68	18.63

It will be seen in the table given above that the rate of admission to hospital increased from 454 per 1,000 in 1939 to the maximum of 746 in 1942 from which it showed very small declines to 743 and 733 respectively during 1943 and 1944. In 1945, it fell to 584. It is interesting to note here that incidence of malaria similarly fell from 206 in 1942 to 76 in 1945 (Table 10).

It is quite obvious that hospital admissions which kept to the high figure of 3/4ths the strength for at least three years, do not tell the whole story of abstention from duty. There was a much larger incidence of minor ailments among the troops which is reflected in their rates of admissions for barrack treatment. These patients attended what were generally called the M.I. Rooms at a rate of 1,297 in 1939;

1,472 in 1940; 1,584 in 1941; 1,651 in 1942; 1,558 in 1943; 1,373 in 1944 and 1,347 in 1945. These figures do indicate the gravity of the position, in so far as a certain number of troops are shown to have reported as many as $1\frac{1}{2}$ times the number of cases. The ratio of hospital admissions to barrack admissions was 1:3 from 1939 to 1941 and 1:2 from 1942 to 1945. A combined rate for hospital and barrack admissions presents a frightening picture.

Another way in which the morbidity history could be related was to indicate average constantly sick rate. Figures are given in table on page 282. The number generally varied from 16 to 30, except in 1944 when it was 43 per 1,000 for hospitals. A lower figure, varying from 11 to 19 in barracks produced higher annual rates, emphasising the importance of frequency of occurrence in the case of the latter.

General death rate per 1,000 of strength was 2.12 in 1939; 2.11 in 1940; 3.48 in 1941; 4.99 in 1942; 4.12 in 1943; 3.30 in 1944 and 2.62 in 1945. In individual causes, the highest death rate was from infective and parasitic diseases during all the years except in 1939 and 1940. They accounted for 21 to 40 per cent. of all deaths of the persons admitted to hospitals from one or the other cause (Table 5).

From the point of view of logistics, some interesting light is thrown by figures of average sick time to each soldier and the average duration of each illness. With the growth of war, the average sick time to each soldier also increased from six in 1939/1940 to eight in 1941, nine in 1942, eleven in 1943 and sixteen in 1944. Thereafter it fell to fourteen in 1945. Obviously, such a change could not be expected to come about in the duration of each illness. With new discoveries the duration of illness caused by a disease certainly should fall. Since figures in table on page 282 give a combined view, the effect of the new ways of fighting diseases discovered during World War II gets lost. If these figures could be available for individual diseases, more useful conclusions were possible.

Among the individual diseases from which VCOs and IORs suffered, malaria formed the major single cause. It was responsible for 29.8; 34.5; 25.1; 29.1; 27.4; 23.2 and 14.1 per cent. of all diseases during 1939 to 1945 respectively (Table 2). Its incidence has varied between the highest rate in 1933 at 212.2 per 1,000 and the lowest in 1937 at 97.9 per 1,000. It increased to 118.3 in 1939 and to 173.2 in 1940. Subsequently it kept on increasing to the highest figure of 206.0 per 1,000 in 1942. It came down slightly in 1943 but with great intensity thereafter. In 1945, malaria incidence was at a level very much lower than previously including the pre-war figures. The rate in 1945 was 76.1 per 1,000 and in 1946 43.7 per 1,000. The lowest figure ever of 33.62 was reached in 1947, in spite of the fact that large bodies of troops were employed away from controlled areas on internal defence duties.

Breakdown of malaria incidence by types is shown in table on page 285. In any year, benign tertian was the most common form found in Indian troops. It was generally responsible for more than half of

malaria incidence. The other two which had greater number of cases were malignant tertian and clinical, in that order. British troops also had a similar spread except that the clinical type accounted for more cases among them.

The average constantly sick from malaria per 1,000 each year in hospitals (table at page 285) was 2.96; 3.71; 3.03; 5.01; 5.41; 9.66; 3.31 and 2.09 respectively from 1939 to 1946. It is interesting to note that, though the admission rate in 1942 was higher than in the other years, the average constantly sick rate was not at the highest in that year. The conclusion derived from this point is that a soldier, who suffered from malaria took longer time to recover from this disease in 1944 than in any other year. This fact is also borne out by the figures of average sick time to each soldier and average duration of each illness.

A study of the table at page 286 would make it clear that the sickness rate from dysentery did not alter much during the years under study. The rate varied from 14 per 1,000 in 1945 to 22 in 1940. Between the various types, bacillary dysentery proved, which was responsible for 66 and 62 per cent. of admissions during 1939 to 1940 and dysentery bacillary clinical which accounted for about 52 per cent. of admissions in 1942 and 1943, were the most common types.

That dysentery had assumed serious proportions would be clear from another set of illuminating figures viz. case fatality rates (table at page 286). In 1942, about every two of the hundred soldiers laid down with dysentery, expired in that year. Even in 1943, the figure was high at one per 100 soldiers. In the other years this rate was lower. The average constantly sick rate from dysentery per 1,000 of strength was 0.62, 0.73, 0.71, 0.66, 0.64, 1.37 and 0.77 respectively during 1939 to 1945. These figures do not indicate the high rate of incapacitation and delirium which dysentery also caused among the fighting forces.

The extremely low rate of incidence of the enteric group of fevers throughout the period as indicated on page 287, seems encouraging, but the high fatality rate, perhaps the highest of any ailment, is not so.

The continued intensive anti-mosquito and spraying measures seem to have played great part in reducing the incidence of sandfly fever from 10.01 in 1941 to 0.69 per 1,000 in 1945.

The incidence rate per 1,000 of strength for tuberculosis during the war was higher than that obtained in peace time. The death rate per 1,000 strength also rose steadily each year during the war; which was 0.61 in 1945, as compared to 0.10 in 1939. Case fatality rate was 4.67, 4.44, 8.60, 18.03, 19.42, 15.87 and 20.63 per cent. respectively from 1939 to 1945.

A striking increase in the incidence of venereal diseases occurred throughout the period. The admission rate during 1945 was 43.4 per 1,000; during 1944 it was 48.8 and during 1943 49.7. Against peace time average rate of 8 to 12 per 1,000 it seems distressingly high. There

Incidence rate per 1,000 of strength due to malaria, distributed by types among VCOs and IORs in the India Command.

Type of malaria	1939		1940		1941		1942		1943		1944		1945	
	Rate per 1,000	Per-centage	Rate per 1,000	Per-centage	Rate per 1,000	Per-centage	Rate per 1,000	Per-centage	Rate per 1,000	Per-centage	Rate per 1,000	Per-centage	Rate per 1,000	Per-centage
Clinical ..	4.7	3.97	12.0	6.93	27.7	19.17	54.5	26.46	34.5	17.90	14.7	18.28	8.0	10.55
Quartan ..	0.2	0.17	0.3	0.18	0.1	0.11	0.1	0.07	0.2	0.10	0.2	0.29	0.1	0.11
Benign tertian..	79.9	67.54	111.6	64.43	79.7	55.07	97.2	47.19	106.1	55.12	107.0	42.75	53.8	70.75
Malignant tertian	31.5	26.63	45.4	26.21	33.6	23.20	44.7	21.72	40.1	20.81	34.4	34.66	12.5	16.37
Cachexia ..	2.0	1.69	3.9	2.25	1.5	1.01	1.3	0.64	1.1	0.58	1.5	1.92	0.5	0.62
Mixed ..	*	*	*	*	2.1	1.44	8.1	3.92	10.6	5.49	1.7	2.10	1.2	1.60
Total ..	118.3	100.00	173.2	100.00	144.6	100.00	206.0	100.00	192.6	100.00	159.5	100.00	76.1	100.00

*Included with cachexia.

Incidence (rate per 1,000) due to dysentery by its different types among VCOs and IORs in the India Command.

Type of dysentery	1939		1940		1941		1942		1943		1944		1945	
	Rate per 1,000	Per-centage	Rate per 1,000	Per-centage	Rate per 1,000	Per-centage	Rate per 1,000	Per-centage	Rate per 1,000	Per-centage	Rate per 1,000	Per-centage	Rate per 1,000	Per-centage
Dysentery protozoal	0.6	3.4	0.9	3.9	1.1	5.4	1.0	5.2	1.3	8.3	2.5	15.7	2.5	17.8
Dysentery bacillary proved ..	11.3	66.1	13.8	61.7	9.4	44.6	6.5	32.4	4.6	28.7	6.1	37.4	5.8	41.1
Dysentery bacillary exudate ..	2.0	11.9	3.1	13.9	3.0	14.4	2.2	10.9	1.6	10.1	1.8	11.4	2.5	17.6
Dysentery bacillary clinical ..	3.2	18.6	4.6	20.5	7.5	35.6	10.3	51.5	8.5	52.9	5.8	35.5	3.3	23.5
Total Dysentery	17.06	100.00	22.34	100.00	21.06	100.00	19.99	100.00	16.04	100.00	16.24	100.00	14.22	100.00
Deaths due to dysentery (rate per 1,000)	0.04		0.02		0.05		0.36		0.14		0.09		0.02	
Case fatality rate per cent. ..	0.25		0.08		0.26		1.79		0.85		0.56		0.16	

Incidence rate per 1,000 of strength due to enteric group of fevers among VCOs and IORs in the India Command.

Type of enteric fevers ..	1939	1940	1941	1942	1943	1944	1945
Typhoid fever ..	0.23	0.35	0.21	0.22	0.25	0.25	0.15
Para typhoid 'A' ..	0.14	0.16	0.11	0.03	0.03	0.02	0.02
Para typhoid 'B' ..	0.01	0.02	..	0.01	0.00	0.01	..
Para typhoid 'C' ..	..	0.01	0.00	..	..	0.01	0.00
Enteric group ..	0.17	0.20	0.29	0.18	0.17	0.23	0.15
Total ..	0.55	0.73	0.61	0.44	0.45	0.52	0.32
Death rate per 1,000 ..	0.06	0.05	0.08	0.09	0.08	0.08	0.04
Case fatality rate per cent.	10.94	7.14	12.75	22.32	19.05	16.59	11.39

is, however, a striking resemblance between its prevalence during two world wars, as will be seen from the figures given below:—

Comparison of venereal diseases among VCOs and IORs in the India Command during World War I and II.

Year	Rate per 1,000
1917 ..	45
1918 ..	53
1944 ..	49
1945 ..	43

The following table shows incidence rate per 1,000 from venereal diseases among VCOs and IORs:—

Incidence (rate per 1,000) due to venereal diseases among VCOs and IORs in the India Command.

Type of Venereal Diseases	1939	1940	1941	1942	1943	1944	1945
Gonorrhoea ..	3.4	7.5	9.4	11.0	11.4	11.5	8.2
Soft chancre ..	1.2	1.4	4.1	11.6	17.5	2.1	1.4
Syphilis ..	3.4	6.1	8.1	10.3	9.5	12.6	11.7
Other VD ..	0.5	3.9	6.4	9.6	11.3	22.6	22.1
Total VD ..	8.5	18.9	28.0	42.5	49.7	48.8	43.4

Among the different diseases under this category, the increase in soft chancre was striking during 1942 and 1943. Gonorrhoea and syphilis increased more than threefold. Venereal diseases caused 2

to 8 per cent. sickness of all diseases. The death rate was very negligible, which varied between 0.01 to 0.03 per 1,000.

From about 12 per 1,000 admissions from scabies in 1939 increased to 33 per 1,000 in 1944 and 26 in 1945. It has been authoritatively established that this disease is acquired in two main ways, by the sepoy; from infection in his village and from infection during illicit sexual intercourse. It was remarked in 1943 that the high rate of incidence from this disease prevalent then was a reflection of both these conditions.

The stress and strain of War materially increase the incidence of mental diseases. Their incidence rate per 1,000 strength rose from 1.27 in 1939 to 6.82 in 1945. Over the period the highest rate occurred in 1945, still it was only about half the corresponding rate for BORs. In the following table the break up of this incidence by various categories is shown.

Incidence rate per 1,000 of strength in respect of mental diseases among VCOs and IORs in the India Command.

Diseases	1939	1940	1941	1942	1943	1944	1945
Mental deficiency ..	0.01	0.02	0.1	0.2	0.3	0.6	0.8
<i>Psychoneurosis:</i> ..							
Hysteria ..	0.5	1.0	0.9	1.2	1.7	1.9	2.1
Anxiety states ..	0.3	0.2	0.4	0.5	0.5	0.7	1.1
<i>Psychosis:</i> ..							
Manic-depression ..	0.1	0.1	0.3	0.3	0.3	0.3	0.1
Schizophrenia ..	0.1	0.2	0.2	0.2	0.6	0.8	0.7
Other Mental diseases ..	0.3	0.4	0.3	0.6	0.9	1.6	2.0
Total mental diseases ..	1.3	1.9	2.3	3.0	4.4	5.9	6.8

Mention in this connection may perhaps be made of 'mental deficiency', 'hysteria' and 'schizophrenia' among which the larger increases occurred.

Common cold, though not usually fatal, caused much 'incapacity' among VCOs and IORs. Its admission rate per 1,000 of strength was 15.74, 24.70, 39.55, 45.10, 40.45, 39.34 and 32.49 from 1939 to 1945 respectively. It caused 4 to 7 per cent. of all sick admissions, each year.

Diseases of the respiratory system were responsible for a very high rate of admissions, each year and were next only to the diseases of the 'infective and parasitic' group. As between the different causes of respiratory diseases, common cold, bronchi and bronchioles, pharyngitis and pneumonia were the principal diseases, contributing to the high rates. Case fatality rates due to pneumonia was in the order of 5.39, 3.49, 6.62, 8.84, 7.08, 4.29 and 2.84 per cent. from 1939 to 1945 respectively.

One third to one fourth share of the digestive diseases was borne by diarrhoea. Its admission rate per 1,000 was of the order of 6.31, 10.89, 23.67, 32.69, 25.66, 20.86 and 16.95 during 1939 to 1945 respectively. Not many deaths were reported from it. Another important cause in this group was liver diseases. Break up of liver diseases, emphasising the importance of non-amoebic hepatitis and jaundice, is shown below:—

Incidence rate per 1,000 of strength for diseases of the liver by its constituents among VCOs and IORs in the India Command.

Diseases	1939	1940	1941	1942	1943	1944	1945
Hepatitis amoebic ..	0.51	0.09	0.23	0.49	0.99	1.42	1.31
Hepatitis non-amoebic ..	..	0.47	0.26	0.29	0.96	6.19	7.62
Hepatitis chronic (cirrhosis) ..	0.03	..	..	0.01	0.04	0.04	0.04
Hepatitis abscess (tropical abscess) ..	0.02	0.02	0.03	0.01	0.04	0.03	0.02
Jaundice ..	0.64	4.31	5.76	4.68	7.14	5.50	1.68
Total ..	1.20	4.89	6.28	5.48	9.16	13.18	10.67

Admissions into hospitals for skin diseases increased considerably in 1944 and 1945. From 17 per 1,000 in 1939 and 1940 respectively, they increased to 32 per 1,000 in each of 1944 and 1945. Admissions from areolar tissues kept throughout at a high level, within a range of 34 to 48 (1943) per 1,000, during these years. Within the diseases of areolar tissues, cellulitis was the principal cause of higher admission. It alone accounted for a rate per 1,000 of 22.8, 23.4, 25.7, 28.7, 28.6, 25.4 and 19.0 respectively during the seven years, 1939 to 1945 respectively.

Some of the diseases which did not produce a very high admission rate but which do call for serious public health measures to be taken generally are shown in the table on page 290 with the number of admissions from each.

The relative importance of different groups of diseases and the specific diseases under each of them, would be seen in Tables 2 and 3. The former emphasise the obvious, in so far as it indicates that infective and parasitic diseases were the most important single group from the point of admissions to hospitals; respiratory diseases being the next most important group followed by "the diseases of the skin and cellular tissue" and those of the digestive system. Except in the case of infective and parasitic diseases, which exhibited a tendency towards the end of the period of a smaller share to total sickness, all the others of the group mentioned above kept to a certain average level throughout the period. The latter (Table 3) shows the relative importance of each disease in the total. For instance malaria was the greatest single cause of admissions among the infective and parasitic diseases and also among all the

specific diseases; common cold enjoyed this status among the respiratory diseases; diarrhoea in the digestive group; and diseases of the acrolar tissues among the diseases of the skin and cellular tissues.

Actual number of admissions from certain diseases among VCOs and IORs in the India Command.

	1939	1940	1941	1942	1943	1944	1945
Cerebrospinal fever ..	28	96	800	1,426	1,171	528	236
Cholera ..	1	1	61	47	154	70	87
Dengue ..	130	197	277	1,078	1,035	1,163	450
Diphtheria ..	2	3	8	22	6	25	44
Erysipelas ..	2	4	16	22	30	23	13
Measles ..	149	182	2,042	892	2,237	2,190	1,669
Oriental Sore ..	137	86	155	315	178	119	147
Kala-azar ..	57	46	102	90	124	257	304
Pediculosis ..	3	3	..	..	..	..	..
Plague ..	..	..	..	..	27	11	22
Poliomyelitis ..	3	..	3	3	7	15	52
Brucellosis (Undulant fever)	7	8	10	10	13	3	15
Smallpox ..	21	25	43	152	380	782	438
Leprosy ..	6	20	..	..	754	1,160	679
Rheumatic fever ..	80	157	280	600	675	506	353
Heat stroke ..	..	5	64	136	113	137	75
Heat exhaustion ..	20	46	184	264	190	238	515
Sun stroke ..	..	..	2	1	1	6	12

A similar picture is presented by mortality figures given in Tables 4 and 5. Due largely to tuberculosis, malaria and cerebrospinal fever, infective and parasitic diseases were again responsible for 20 to 40 per cent. of all deaths in the India Command during the period under study. The diseases of the respiratory system accounted for 12 (1945) to 27 (1941) per cent. of all deaths, mainly based on the deaths from pneumonia. The diseases of the digestive system also caused 6 to 10 per cent. of all deaths. In the matter of mortality, diseases of the circulatory system occupied an important position quite distinct from their minor position in effecting hospital admissions.

TABLE I
Admissions to Hospitals—Annual rates per 1,000 strength: VCOs and IORs: India Command.

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever	0.24	0.55	2.40	2.71	1.58	0.60	0.27
Cholera	0.01	0.01	0.18	0.09	0.21	0.08	0.10
Dengue	1.11	1.14	0.83	2.05	1.40	1.31	0.51
Diphtheria	0.02	0.02	0.02	0.04	0.01	0.03	0.05
Dysentery	17.06	22.34	21.06	19.99	16.04	16.24	14.22
Enteric group of fevers	0.55	0.73	0.61	0.44	0.45	0.52	0.32
Erysipelas	0.02	0.02	0.05	0.04	0.04	0.03	0.01
Malaria	118.29	173.20	144.64	205.98	192.55	159.53	76.10
Measles	1.27	1.05	6.14	1.70	3.02	2.48	1.90
Mumps	7.03	9.31	20.63	15.52	14.57	12.58	11.72
Oriental sore	1.17	0.50	0.47	0.60	0.24	0.13	0.17
Kala-azar	0.49	0.27	0.31	0.17	0.17	0.29	0.35
Pediculosis	0.03	0.02	..	..	..	..	..
Plague	0.03	..	..	0.01	0.04	0.01	0.03
Polomyelitis	5.99	5.94	10.01	6.20	0.01	0.02	0.06
Sandfly fever	11.91	16.84	17.47	21.27	2.36	2.23	0.69
Scabies	0.18	0.14	0.13	0.29	27.22	33.23	26.24
Smallpox	1.86	2.21	2.10	2.39	0.51	0.88	0.50
T.B. pulmonary	0.33	0.38	0.31	0.48	2.45	2.52	2.57
T.B. others	..	..	..	..	0.44	0.35	0.35
Scarlet fever	0.36	0.18	0.09	0.06	..	0.003	..
Typhus fever	..	..	..	..	0.19	0.26	0.43
Trachoma (conjunctivitis, granular)	9.32	9.40	9.10	10.42	14.64	13.11	9.60
Veneral diseases	8.54	18.90	28.02	42.54	49.74	48.77	43.41
Others	13.46	11.91	11.50	12.31	16.53	16.71	17.99
Total	199.24	275.05	276.10	345.30	344.42	311.95	207.58

TABLE 1—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(2) <i>Neoplasms</i>							
(3) Tumour and cyst ..	1.45	1.37	1.37	1.19	1.27	1.17	1.22
(3) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>							
Ductless or endocrine glands ..	0.15	0.15	0.23	0.19	0.32	0.29	0.16
Diseases due to disorder of nutrition or of metabolism ..	0.19	0.33	0.37	0.38	0.75	0.59	0.77
Total ..	0.33	0.48	0.60	0.57	1.07	0.88	0.93
(4) <i>Diseases of the Blood and Blood forming organs</i> ..	5.01	5.05	7.75	12.04	13.72	12.37	8.88
(5) <i>Mental, Psychoneurotic and personality disorders</i>							
(6) Mental diseases ..	1.27	1.91	2.25	2.96	4.36	5.88	6.82
(6) <i>Diseases of the Nervous system and sense organs</i> ..							
Diseases of the nervous system ..	3.92	5.17	5.65	6.89	6.93	5.78	4.34
Diseases of the ear and nose ..	3.34	4.36	4.64	5.10	6.97	7.06	6.03
Total ..	9.32	11.17	15.42	19.64	21.30	30.57	27.71
(7) <i>Diseases of the Circulatory system</i>	16.58	20.70	25.71	31.63	35.20	43.41	38.08
Rheumatic fever ..	0.68	0.91	0.84	1.14	0.91	0.57	0.40
Valvular diseases of heart ..	0.09	0.20	0.08	0.04	0.21	0.05	0.03
Disordered action of heart ..	0.43	0.67	0.70	0.37	0.61	0.83	0.52
Others ..	0.64	0.87	1.15	1.62	1.08	1.63	1.65
Total ..	1.84	2.65	2.77	3.17	2.80	3.08	2.61
(8) <i>Diseases of the Respiratory system</i>							
Common cold ..	15.74	24.70	39.55	45.10	40.45	39.34	32.49
Influenza ..	3.66	5.14	5.10	4.55	3.19	1.55	0.64
Pneumonia ..	5.39	8.27	11.89	11.83	11.93	8.56	8.23
Laryngitis and tracheitis ..	0.92	0.80	1.11	1.54	1.48	2.19	1.60

TABLE 1—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
Bronchi and bronchioles ..	13.88	16.57	30.20	35.15	38.26	32.64	23.93
Tonsillitis ..	5.49	5.01	4.06	4.35	3.97	5.04	5.93
Pharyngitis ..	24.11	17.54	22.21	23.08	16.23	20.01	20.08
Others ..	1.95	2.20	2.36	4.17	2.63	3.12	5.65
Total ..	71.15	80.22	116.48	129.77	118.14	112.44	98.55
(9) <i>Diseases of the Digestive system</i>							
Diarrhoea ..	6.31	10.89	23.67	32.69	25.66	20.86	16.95
Gastritis ..	1.18	1.16	1.59	3.04	2.98	3.30	3.27
Gastric ulcer ..	..	0.13	0.22	0.19	0.30	0.31	0.28
Duodenal ulcer ..	..	0.12	0.10	0.07	0.13	0.17	0.21
Diseases of the liver ..	1.20	4.89	6.28	5.48	9.16	13.18	10.67
Diseases of the teeth and gums ..	3.38	3.09	3.24	3.57	3.33	4.72	4.65
Others ..	18.28	21.18	25.11	32.06	29.09	31.67	29.08
Total ..	30.35	41.55	60.21	77.10	70.65	74.20	65.11
(10) <i>Diseases of the Genitourinary system</i>							
Diseases of Male genital organs ..	2.71	4.86	8.76	10.51	10.83	10.44	7.89
Diseases of the urinary system ..	3.15	3.26	3.14	3.48	3.07	3.09	2.15
Diseases of the breast ..	0.03	0.02	0.01	0.002	0.02	0.02	0.05
Total ..	5.88	8.14	11.91	14.00	13.92	13.54	10.09
(11) <i>Diseases of the Skin and Cellular tissue</i>							
Diseases of the skin ..	16.89	16.55	15.97	18.96	22.70	32.01	32.24
Diseases of the areolar tissues ..	34.09	33.97	38.99	46.35	48.28	47.43	37.21
Total ..	50.98	50.52	54.96	65.31	70.98	79.44	79.45
(12) <i>Diseases of the Bones and organs of movement</i>							
..	11.20	11.83	11.93	13.95	14.77	15.90	14.38
(13) <i>Malformation</i>	0.09	0.08	0.06	0.07	0.05	0.07	0.04

TABLE 1—(Contd.)

Diseases		1939	1940	1941	1942	1943	1944	1945
(14)	<i>Symptoms, Senility and Ill-defined conditions</i>							
	P.U.O. ..	0.09	0.09	0.13*	0.54	2.80	9.68	1.10
(15)	<i>All other diseases</i> ..	0.86	2.71	3.42	9.12	9.80	11.44	14.01
(16)	<i>All diseases</i> ..	396.34	502.25	575.62	706.72	703.95	687.45	538.84
(17)	<i>Accidents, poisoning and violence</i>							
	General injuries ..	0.38	0.73	1.88	1.47	0.99	1.70	2.49
	Local injuries ..	55.32	44.27	37.59	37.64	37.35	42.27	41.46
	Injuries in action ..	1.65	1.48	0.13	0.28	0.04	0.92	0.66
	Poisons ..	0.30	0.22	0.36	0.38	0.37	0.60	0.46
	Total ..	57.64	46.71	39.96	39.77	38.75	45.49	45.07
(18)	<i>All cases</i> ..	453.98	548.95	615.58	746.49	742.70	732.95	583.91

TABLE 2
Relative morbidity rates: VCOs and IORs: India Command.

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever	..						
Cholera	0.06	0.11	0.42	0.38	0.22	0.09	0.05
Dengue	0.002	0.001	0.03	0.01	0.03	0.01	0.02
Diphtheria	0.28	0.23	0.14	0.29	0.20	0.19	0.10
Dysentery	0.004	0.003	0.004	0.01	0.001	0.004	0.01
Enteric group of fevers	4.30	4.45	3.66	2.83	2.28	2.36	2.64
Erysipelas	0.14	0.14	0.11	0.06	0.06	0.08	0.06
Malaria	0.004	0.004	0.01	0.01	0.01	0.004	0.003
Measles	29.85	34.49	25.13	29.15	27.35	23.21	14.12
Mumps	0.32	0.21	1.07	0.24	0.43	0.36	0.35
Oriental sore	1.77	1.85	3.58	2.20	2.07	1.83	2.17
Kala-azar	0.30	0.10	0.08	0.08	0.03	0.02	0.03
Pediculosis	0.12	0.05	0.05	0.02	0.02	0.04	0.06
Plague	0.01	0.003	..	..	..	..	..
Polomyelitis	..	..	0.001	0.001	0.01	0.001	0.004
Sandfly fever	0.01	..	..	0.001	0.001	0.002	0.01
Scabies	1.51	1.18	1.74	0.88	0.33	0.33	0.13
Smallpox	3.01	3.35	3.03	3.01	3.87	4.84	4.87
T. B. pulmonary	0.05	0.03	0.02	0.04	0.07	0.13	0.09
T. B. others	0.47	0.44	0.36	0.34	0.35	0.37	0.48
Scarlet fever	0.08	0.08	0.05	0.07	0.06	0.05	0.07
Typhus fever	..	..	..	..	..	0.000	..
Trachoma (conjunctivitis, granular)	0.09	0.04	0.02	0.01	0.03	0.04	0.08
Veneral diseases	2.35	1.87	1.58	1.47	2.08	1.91	1.78
Others	2.15	3.76	4.87	6.02	7.07	7.09	8.06
Total ..	3.40	2.37	2.00	1.74	2.35	2.43	3.34
	50.27	54.76	47.97	48.86	48.93	45.38	38.52

TABLE 2—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(2) <i>Neoplasms</i>							
Tumour and cyst	0.37	0.27	0.24	0.17	0.18	0.17	0.22
(3) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>							
Ductless or endocrine glands ..	0.04	0.03	0.04	0.03	0.04	0.04	0.03
Diseases due to disorder of nutrition or of metabolism ..	0.05	0.07	0.06	0.05	0.11	0.09	0.14
Total	0.08	0.10	0.10	0.08	0.15	0.13	0.17
(4) <i>Diseases of the Blood and Blood forming organs</i>	1.26	1.00	1.35	1.70	1.95	1.80	1.65
(5) <i>Mental, Psychoneurotic and Personality disorders</i>	0.32	0.38	0.39	0.42	0.62	0.86	1.27
(6) <i>Diseases of the Nervous system and sense organs</i>							
Diseases of the nervous system ..	0.99	1.03	0.98	0.98	0.98	0.84	0.89
Diseases of the eye	0.84	0.87	0.80	0.72	0.99	1.03	1.12
Diseases of the ear and nose ..	2.35	2.22	2.68	2.78	3.03	4.45	5.14
Total	4.18	4.12	4.47	4.48	5.00	6.31	7.07
(7) <i>Diseases of the Circulatory system</i>							
Rheumatic fever	0.17	0.18	0.15	0.16	0.13	0.08	0.07
Valvular diseases of heart ..	0.02	0.04	0.01	0.01	0.03	0.01	0.01
Disordered action of heart ..	0.11	0.13	0.12	0.05	0.09	0.12	0.10
Others	0.16	0.17	0.20	0.23	0.15	0.24	0.31
Total	0.46	0.53	0.48	0.45	0.40	0.45	0.48
(8) <i>Diseases of the Respiratory system</i>							
Common cold	3.97	4.92	6.87	6.38	5.75	5.72	6.03
Influenza	0.92	1.02	0.89	0.64	0.45	0.23	0.12

TABLE 2—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
Pneumonia ..	1.36	1.65	2.07	1.67	1.69	1.24	1.53
Laryngitis and tracheitis ..	0.23	0.16	0.19	0.22	0.21	0.32	0.30
Bronchi and bronchioles ..	3.50	3.30	5.25	4.97	5.43	4.75	4.44
Tonsillitis ..	1.39	1.00	0.71	0.62	0.56	0.73	1.10
Pharyngitis ..	6.08	3.49	3.86	3.27	2.30	2.91	3.73
Others ..	0.49	0.44	0.41	0.59	0.37	0.45	1.05
Total ..	17.95	15.97	20.24	18.36	16.78	16.36	18.29
(9) <i>Diseases of the Digestive system</i>							
Diarrhoea ..	1.59	2.17	4.11	4.63	3.65	3.03	3.15
Gastritis ..	0.30	0.23	0.28	0.43	0.42	0.48	0.61
Gastric ulcer ..	..	0.03	0.04	0.03	0.04	0.04	0.05
Duodenal ulcer ..	..	0.02	0.02	0.01	0.02	0.03	0.04
Diseases of the liver ..	0.30	0.97	1.09	0.61	1.30	1.92	1.74
Diseases of the teeth and gums ..	0.85	0.62	0.56	0.51	0.47	0.69	0.86
Others ..	4.61	4.22	4.36	4.70	4.13	4.61	5.64
Total ..	7.66	8.25	10.46	10.91	10.03	10.79	12.08
(10) <i>Diseases of the Genito-urinary system</i>							
Diseases of male genital organs ..	0.68	0.97	1.52	1.49	1.54	1.52	1.46
Diseases of the urinary system ..	0.79	0.65	0.54	0.49	0.43	0.45	0.40
Diseases of the breast ..	0.01	0.004	0.001	0.000	0.002	0.003	0.01
Total ..	1.48	1.62	2.07	1.98	1.97	1.97	1.87
(11) <i>Diseases of the Skin and Cellular tissue</i>							
Diseases of the skin ..	4.26	3.30	2.77	2.68	3.22	4.66	5.98
Diseases of the areolar tissues ..	8.60	6.76	6.77	6.56	6.86	6.90	6.91
Total ..	12.86	10.06	9.55	9.24	10.08	11.56	12.89

TABLE 4
Annual rates of mortality per 1,000 strength: VCOs and IORs: India Command.

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever	0.04	0.10	0.31	0.38	0.20	0.07	0.04
Cholera	..	0.01	0.06	0.02	0.02	0.02	0.02
Diphtheria	..	..	0.003	0.01	..	0.003	0.003
Dysentery	0.04	0.02	0.05	0.36	0.14	0.09	0.02
Enteric group of fevers	0.06	0.05	0.08	0.09	0.08	0.08	0.04
Erysipelas	..	..	0.003	0.01	..	..	..
Malaria	0.04	0.09	0.15	0.45	0.41	0.28	0.11
Measles	..	..	0.07	..	0.02	0.002	0.001
Mumps	..	..	0.01	..	0.001	..	..
Oriental sore	..	..	..	..	..	..	..
Kala-azar	0.03	0.02	0.02	0.01	0.02	0.02	0.01
Pediculosis	..	..	..	..	..	..	..
Plague	..	..	..	..	0.01	0.01	0.01
Polioomyelitis	0.01	..	..	..	0.004	0.002	0.01
Sandfly fever	..	..	..	..	..	0.00	..
Scabies	..	..	..	..	..	..	..
Smallpox	0.03	0.02	0.01	0.03	0.07	0.07	0.04
T. B. pulmonary	0.06	0.11	0.17	0.43	0.46	0.38	0.54
T. B. others	0.04	0.01	0.03	0.09	0.10	0.08	0.07
Scarlet fever	..	..	..	..	..	..	..
Typhus fever	0.01	0.01	0.003	..	0.01	0.03	0.03
Trachoma (conjunctivitis, granular)	..	..	..	..	..	..	..
Venereal diseases	0.01	0.01	0.01	0.01	0.02	0.03	0.01
Others	0.07	0.05	0.05	0.08	0.08	0.11	0.05
Total ..	0.44	0.48	1.03	1.96	1.64	1.28	0.99

TABLE 4 — (Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(2) <i>Neoplasms</i>							
Tumour and cyst ..	..	0.03	0.02	0.004	0.04	0.03	0.05
(3) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>	..	0.01	..	0.002	0.01	0.01	0.01
Ductless or endocrine glands ..	..	0.01	0.003	0.02	0.02	0.02	0.01
Diseases due to disorder of nutrition or of metabolism ..	..	0.01	0.003	0.02	0.02	0.03	0.02
Total ..	0.03	0.03	0.06	0.17	0.11	0.10	0.10
(4) <i>Diseases of the Blood and Blood forming organs</i> ..	0.01	0.01	0.02	0.01	0.01	0.01	0.01
(5) <i>Mental, Psychoneurotic and personality disorders</i>							
Mental diseases ..	0.10	0.03	0.10	0.13	0.16	0.16	0.09
(6) <i>Diseases of the Nervous system and sense organs</i>	..	..	..	..	..	..	..
Diseases of nervous system ..	0.01	0.01	0.01	0.002	0.001	0.003	0.01
Diseases of the eye ..	0.11	0.03	0.11	0.13	0.17	0.16	0.10
Diseases of the ear and nose ..	..	..	..	..	..	..	..
Total ..	0.01	0.03	0.01	0.004	0.002	0.004	0.004
(7) <i>Diseases of the Circulatory system</i>							
Rheumatic fever ..	0.01	..	0.003	0.004	0.01	0.004	0.002
Valvular diseases of heart ..	0.04	0.03	0.07	0.01	0.02	0.03	0.03
Disordered action of heart ..	0.10	0.06	0.10	0.12	0.09	0.09	0.10
Others ..	0.15	0.09	0.18	0.14	0.12	0.13	0.13
Total ..	0.01	..	..	..	..	..	..
(8) <i>Diseases of the Respiratory system</i>							
Common cold ..	0.01	..	0.02	..	..	..	..
Influenza ..	0.29	0.29	0.79	1.05	0.84	0.37	0.23
Pneumonia ..	..	..	..	..	..	..	..

TABLE 4—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(9)							
Laryngitis and tracheitis ..	..	0.01	..	0.01	0.001	..	..
Bronchi and bronchioles ..	0.01	0.01	0.03	0.08	0.05	0.02	0.01
Tonsillitis ..	0.01	..	..	0.002	0.002	0.001	0.002
Pharyngitis ..	..	..	..	..	..	..	0.001
Others ..	0.03	0.01	0.08	0.09	0.06	0.07	0.06
Total ..	0.35	0.31	0.93	1.22	0.96	0.46	0.31
<i>Diseases of the Digestive system</i>							
Diarrhoea ..	..	..	0.01	0.05	0.03	0.01	0.004
Gastritis ..	..	..	0.01	0.002	0.01	0.01	0.001
Gastric ulcer ..	0.01	0.01	0.003	0.01	0.01	0.01	0.004
Duodenal ulcer ..	..	0.01	0.003	0.01	0.002	0.002	0.01
Diseases of the liver ..	..	0.01	0.05	0.04	0.05	0.09	0.07
Diseases of the teeth and gums ..	..	0.01	..	0.004	0.002	..	..
Others ..	0.09	0.10	0.17	0.27	0.25	0.21	0.17
Total ..	0.12	0.14	0.23	0.37	0.35	0.33	0.25
(10)							
<i>Diseases of the Genito-urinary system</i>							
Diseases of male genital organs ..	..	0.01	0.003	0.01	0.01	0.01	0.004
Diseases of the urinary system ..	0.03	0.02	0.05	0.07	0.06	0.05	0.04
Diseases of the breast ..	..	..	..	..	..	..	..
Total ..	0.03	0.03	0.06	0.07	0.07	0.06	0.05
(11)							
<i>Diseases of the Skin and Cellular Tissue</i>							
Diseases of the skin ..	..	0.01	0.01	0.01	0.01	0.01	0.01
Diseases of the areolar tissue ..	0.01	0.01	0.04	0.03	0.02	0.04	0.02
Total ..	0.02	0.01	0.05	0.04	0.03	0.05	0.03
(12)							
<i>Diseases of the Bones and Organs of movement</i>							
..	0.01	0.01	0.003	0.01	0.01	0.01	0.01
(13)							
<i>Malformation</i>	..	..	..	0.002	..	0.01	0.002

TABLE 4—(Contd.)

Diseases		1939	1940	1941	1942	1943	1944	1945
(14)	<i>Symptoms, Senility and Ill-defined conditions</i>							
	PUO ..	0.01	0.03	0.02	..	0.002	0.01	0.001
(15)	<i>All other diseases</i> ..	..	..	0.01	0.02	0.01	0.01	0.01
(16)	<i>All diseases</i> ..	1.26	1.20	2.70	4.18	3.57	2.68	2.08
(17)	<i>Accidents, Poisoning and Violence</i>							
	General injuries ..	0.16	0.10	0.29	0.28	0.14	0.20	0.18
	Local injuries ..	0.19	0.43	0.43	0.43	0.38	0.36	0.31
	Injuries in action ..	0.44	0.33	0.03	0.06	0.004	0.02	0.02
	Poisons ..	0.06	0.04	0.03	0.04	0.02	0.04	0.03
	Total ..	0.85	0.91	0.78	0.81	0.55	0.63	0.54
(18)	<i>All cases</i> ..	2.12	2.11	3.48	4.99	4.12	3.30	2.62

Section II

IMNS AND WAC(I)

Among the women, who joined the army during World War II were those categorised as IMNS and WAC(I). The strength of the former never exceeded 1,500 while that of the latter remained below 7,200. A peak strength of about 8,600 was reached gradually in 1945 for both these categories. It will be noticed that no such troops existed in the Indian Army before 1942.

Unlike the male fighting soldier, these troops were not drawn from the general population of the country, but from the more advanced and educated part of it on an average possessed better standard of life. Their lower morbidity experience, therefore, as indicated in Tables 15 to 20 is a necessary corollary of the above mentioned fact.

The combined rates of hospital admissions for the IMNS and WAC(I) per 1,000 strength are given in Table 6; the relative importance of different groups of diseases in Table 7. Similar figures for each of these categories of troops are given in Tables 8, 9, 10 and 11 respectively.

The overall morbidity of the female troops were 29 per cent. in 1942 of the rate for the VCOs and IORs; 65 per cent. in 1943; 81 per cent. in 1944 and 90 per cent. in 1945. These lower rates are reflected also in the corresponding lowered morbidity from important diseases like dysentery, malaria, venereal diseases, common cold, bronchi and bronchioles, pharyngitis and diarrhoea. The most striking difference is, however, provided by almost the negligible rates of admissions due to venereal diseases and diarrhoea in the case of female troops.

These differences are based on crude rates of incidence and are not strictly comparable in the absence of the age distribution of these troops and other relevant factors, e.g. sex, basic metabolism and physiological make-up of these troops etc. In the absence of the standardized rates, therefore, crude rates have been compared, for what they are worth.

As between the IMNS and the WAC(I), it does not appear possible to draw distinctions between the morbidity experience of them. It may be that none formed a representative sample of the population for which they were respectively drawn. However, a comparison in the morbidity history of these two is briefly given below.

From the figures given in Tables 8 and 10 it would be seen that higher rates of admissions from dysentery and malaria were effected among the IMNS during 1942 and 1945, but lower rates during 1943 and 1944; venereal diseases were throughout prevalent among WAC(I) (although at very insignificant absolute rate); mental diseases remained at a higher pitch among the WAC(I) till 1944 but produced a slightly lower incidence in 1945; common cold exhibited higher rates among IMNS during the first two years under study but lower rates during the last two years; bronchi and bronchioles were less frequent among the IMNS only during 1944; tonsillitis produced higher rates among them during 1942 and 1945; and pharyngitis was throughout more prevalent among them. It may, however, be seen that no case was admitted into the hospital from among the IMNS from the following diseases—cerebrospinal

fever, diphtheria, erysipelas, scarlet fever, valvular diseases of heart, gastric ulcer and duodenal ulcer. This was not the case with the WAC(I).

On the whole it does not appear possible to draw any dependable conclusion from the limited sickness experience between these two categories of troops. Even in respect of their overall rates it would be noticed that they were higher for the IMNS during 1942 and 1945, but lower in 1943 and in 1944 than those for the WAC(I).

TABLE 6

Admissions to Hospitals—Annual rates per 1,000 strength: IMNS and WAC(I): India Command,

Diseases	1942	1943 *	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	..	0.44	0.32	..
Diphtheria ..	..	1.76	1.42	0.70
Dysentery ..	7.37	12.98	18.48	21.16
Enteric group of fevers	2.21	3.08	2.05	3.14
Erysipelas ..	..	0.44	0.16	0.12
Malaria ..	39.05	127.83	99.05	37.55
Measels ..	0.74	2.86	5.69	1.98
Mumps ..	0.74	1.10	3.16	2.56
Sandfly fever ..	12.53	8.80	7.27	2.91
T. B. pulmonary ..	..	2.42	5.53	2.56
T. B. others ..	..	..	0.79	0.70
Scabies ..	0.74	1.10	6.16	6.16
Smallpox ..	..	0.66	0.47	0.58
Scarlet fever ..	..	..	..	0.12
Venereal diseases ..	..	0.22	1.74	1.74
Others ..	4.42	11.66	25.28	26.97
Total ..	67.80	175.36	177.57	108.94
(2) <i>Neoplasms</i>				
Tumour and cyst ..	2.21	1.32	4.42	1.74
(3) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Ductless or endocrine glands ..	..	0.44	0.63	0.35
Diseases due to disorder of nutrition or of metabolism ..	0.74	1.32	0.47	1.51
Total ..	0.74	1.76	1.11	1.86
(4) <i>Diseases of the Blood and Blood forming organs</i> ..	5.16	9.02	10.90	8.02
(5) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	2.95	5.28	8.85	13.25
(6) <i>Diseases of the Nervous system and sense organs</i>				
Diseases of the nervous system ..	0.74	4.84	7.90	6.63

TABLE 6—(Contd.)

	Diseases	1942	1943	1944	1945
	Diseases of the eye ..	0.74	3.52	4.42	4.65
	Diseases of ear and nose ..	10.32	27.94	38.39	44.99
	Total ..	11.79	36.30	50.71	56.27
(7)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	1.47	1.32	1.42	1.51
	Valvular diseases of heart ..	0.74	..	0.16	..
	Disordered action of heart ..	..	1.76	1.11	1.05
	Others ..	3.68	2.42	4.58	3.60
	Total ..	5.89	5.50	7.27	6.16
(8)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	8.11	9.02	5.21	7.32
	Influenza ..	2.21	3.74	6.00	2.09
	Pneumonia ..	..	1.76	3.63	3.95
	Laryngitis and tracheitis ..	0.74	1.54	2.21	5.12
	Bronchi and Bronchioles ..	7.37	19.14	26.86	22.90
	Tonsillitis ..	17.69	33.00	42.50	31.04
	Pharyngitis ..	..	9.90	7.11	11.16
	Others ..	11.05	3.08	2.37	5.23
	Total ..	47.16	81.19	95.89	88.83
(9)	<i>Diseases of the Digestive system</i>				
	Diseases of the teeth and gums ..	2.21	3.52	3.79	4.77
	Gastritis ..	2.95	6.60	7.27	6.16
	Gastric ulcer ..	..	0.22	0.32	0.35
	Duodenal ulcer ..	..	0.22	0.16	0.12
	Diseases of the liver ..	2.21	3.96	8.37	8.60
	Others ..	22.84	52.81	63.35	59.41
	Total ..	30.21	67.33	83.25	79.41
(10)	<i>Diseases of the Genito-urinary system</i>				
	Diseases of female genital organs ..	5.89	24.20	50.71	44.30
	Diseases of the urinary system ..	4.42	10.56	9.95	6.39
	Diseases of the breast ..	0.74	..	0.63	0.70
	Total ..	11.05	34.76	61.29	51.39
(11)	<i>Diseases of the Skin and Cellular tissue</i>				
	Diseases of the areolar tissues ..	14.00	19.14	22.27	25.11
	Diseases of the skin ..	2.21	7.26	9.48	13.72
	Total ..	16.21	26.40	31.75	38.83
(12)	<i>Diseases of the Bones and Organs of movement</i> ..	3.68	6.38	13.59	8.84
(13)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	PUO ..	..	3.96	5.69	8.84

TABLE 6—(Contd.)

Diseases		1942	1943	1944	1945
(14)	All other diseases ..	2.21	1.10	11.06	26.16
(15)	All diseases ..	207.07	455.67	563.35	498.54
(16)	Accidents, Poisonings and violence				
	General injuries ..	0.74	3.74	4.58	5.00
	Local injuries ..	11.05	18.04	24.17	22.67
	Injuries in action ..	..	..	..	..
	Poisons ..	..	5.72	1.74	0.70
	Total ..	11.79	27.50	30.49	28.37
(17)	All cases ..	218.86	483.17	593.84	526.91

TABLE 7

Relative casualty rates: IMNS and WAC(I): India Command.

Specialist Groups		1942	1943	1944	1945
(1)	Infective and Parasitic diseases ..	30.98	36.29	29.90	20.68
(2)	Neoplasms ..	1.01	0.27	0.74	0.33
(3)	Allergic, endocrine system, metabolic and nutritional diseases ..	0.34	0.36	0.19	0.35
(4)	Diseases of the blood and blood forming organs ..	2.36	1.87	1.84	1.52
(5)	Mental, psychoneurotic and personality disorders ..	1.35	1.09	1.49	2.52
(6)	Diseases of the nervous system and sense organs	5.39	7.51	8.54	10.68
(7)	Diseases of the circulatory system ..	2.69	1.14	1.22	1.17
(8)	Diseases of the respiratory system ..	21.55	16.80	16.15	16.86
(9)	Diseases of the digestive system ..	13.80	13.93	14.02	15.07
(10)	Diseases of the genito-urinary system ..	5.05	7.19	10.32	9.75
(11)	Diseases of the skin and cellular tissue ..	7.41	5.46	5.35	7.37
(12)	Diseases of the bones and organs of movement ..	1.68	1.32	2.29	1.68
(13)	Symptoms, senility and ill-defined conditions ..	..	0.82	0.96	1.68
(14)	All other diseases ..	1.01	0.23	1.86	4.96
(15)	All diseases ..	94.61	94.31	94.87	94.62
(16)	Accidents, poisonings and violence ..	5.39	5.69	5.13	5.38
(17)	All cases ..	100.00	100.00	100.00	100.00

TABLE 8

Admissions to Hospitals—Annual rates per 1,000 strength: IMNS: India Command.

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	..	..	..	..
	Diphtheria ..	..	..	..	..
	Dysentery ..	11.63	9.94	10.82	22.39
	Enteric group of fever ..	..	2.23	1.66	2.10
	Erysipelas ..	..	..	..	..
	Malaria ..	40.70	53.63	54.12	45.48
	Measles ..	1.94	4.47	5.83	4.20
	Mumps ..	1.94	1.12	1.66	5.60
	Sandfly fever ..	23.25	4.47	4.16	0.70
	T. B. pulmonary ..	..	..	0.83	3.50
	T. B. others ..	..	..	0.83	1.40
	Scabies ..	..	1.12	1.66	1.40
	Smallpox ..	..	1.12	0.83	1.40
	Scarlet fever ..	..	..	..	..
	Venereal diseases ..	..	..	0.83	1.40
	Others ..	9.69	18.99	19.15	34.29
	Total ..	89.14	96.09	102.41	123.85
(2)	<i>Neoplasms</i>				
	Tumour and cyst ..	1.94	2.23	1.66	0.70
(3)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Ductless or endocrine glands ..	..	..	..	..
	Diseases due to disorder of nutrition or of metabolism ..	..	1.12	0.83	0.70
	Total ..	..	1.12	0.83	0.70
(4)	<i>Diseases of the Blood and Blood forming organs</i>	5.81	6.70	9.16	7.70
(5)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	1.94	2.23	2.50	14.69
(6)	<i>Diseases of the Nervous system and sense organs</i>				
	Diseases of the nervous system ..	..	9.94	1.66	9.09
	Diseases of the eye ..	..	..	2.50	4.20
	Diseases of the ear and nose ..	15.50	31.28	25.81	47.58
	Total ..	15.50	40.22	29.97	60.87
(7)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	1.94	3.35	0.83	2.10
	Valvular diseases of heart ..	..	..	..	..
	Disordered action of heart ..	..	..	0.83	..
	Others ..	7.75	1.12	2.50	3.50
	Total ..	9.69	4.47	4.16	5.60

TABLE 8—(Contd.)

Diseases		1942	1943	1944	1945
(8)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	9.69	18.99	5.00	7.00
	Influenza	5.81	1.12	4.16	1.40
	Pneumonia .. ..	..	2.23	5.00	2.80
	Laryngitis and tracheitis	1.94	..	2.50	6.30
	Bronchi and Bronchioles	9.69	26.82	13.32	24.49
	Tonsillitis	25.19	24.58	31.64	35.68
	Pharyngitis	19.38	18.99	8.33	20.29
	Others .. ..	..	7.82	5.83	8.40
	Total	71.70	100.56	75.77	106.35
(9)	<i>Diseases of the Digestive system</i>				
	Diseases of the teeth and gums	3.88	1.12	4.16	9.80
	Gastritis .. ..	..	6.70	3.33	11.89
	Gastric ulcer .. ..	..	..	0.83	..
	Duodenal ulcer .. ..	..	..	..	..
	Diseases of the liver .. ..	..	5.59	5.83	9.80
	Others	32.94	42.46	38.30	48.28
	Total	36.82	55.87	52.46	79.77
(10)	<i>Diseases of the Genito-urinary system</i>				
	Diseases of female genital organs	1.94	10.06	12.49	28.69
	Diseases of the urinary system	5.81	3.35	2.50	7.00
	Diseases of the breast .. ..	..	..	..	0.70
	Total	7.75	13.41	15.00	36.38
(11)	<i>Diseases of the Skin and Cellular tissue</i>				
	Diseases of the areolar tissues	15.50	15.64	14.16	24.49
	Diseases of the skin	1.94	4.47	9.16	12.59
	Total	17.44	20.11	23.31	37.08
(12)	<i>Diseases of the Bones and organs of movement</i>	5.81	5.59	11.66	7.70
(13)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	PUO .. ..	..	2.23	3.33	7.70
(14)	<i>All other diseases</i>	3.88	5.59	7.49	23.09
(15)	<i>All diseases</i>	267.43	356.42	339.72	512.18
(16)	<i>Accidents, Poisoning and violence</i>				
	General injuries .. ..	..	..	..	5.60
	Injuries in action .. ..	..	..	..	..
	Local injuries	7.75	15.64	13.32	21.69
	Poisons .. ..	..	..	1.66	0.70
	Total	7.75	15.64	14.99	27.99
(17)	<i>All cases</i>	275.18	372.06	354.70	540.17

TABLE 9
Relative casualty rates: IMNS: India Command.

Specialist Groups	1942	1943	1944	1945
(1) Infective and parasitic diseases	32.39	25.83	28.87	22.93
(2) Neoplasms	0.70	0.60	0.47	0.13
(3) Allergic, endocrine system, metabolic and nutritional disease ..	..	0.30	0.23	0.13
(4) Diseases of the blood and blood forming organs ..	2.11	1.80	2.58	1.42
(5) Mental, psychoneurotic and personality disorders	0.70	0.60	0.70	2.72
(6) Diseases of the nervous system and sense organs	5.63	10.81	8.45	11.27
(7) Diseases of the circulatory system	3.52	1.20	1.17	1.04
(8) Diseases of the respiratory system	26.06	27.03	21.36	19.68
(9) Diseases of the digestive system	13.38	15.02	14.79	14.77
(10) Diseases of the genito-urinary system	2.82	3.60	4.23	6.74
(11) Diseases of the skin and cellular tissue	6.34	5.41	6.57	6.87
(12) Diseases of the bones and organs of movement ..	2.11	1.50	3.29	1.42
(13) Symptoms, senility and ill-defined conditions ..	..	0.60	0.94	1.42
(14) All other diseases	2.41	1.50	2.11	4.27
(15) All diseases	97.18	95.80	95.78	94.82
(16) Accidents, poisonings and violence	2.82	4.20	4.22	5.19
(17) All cases	100.00	100.00	100.00	100.00

TABLE 10
Admissions to Hospitals—Annual rates per 1,000 strength: WAC(I): India Command.

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	..	0.55	0.39	..
Diphtheria .. ..	..	2.19	1.75	0.84
Dysentery	4.76	13.97	20.28	20.91
Enteric group of fevers ..	3.57	3.29	2.14	3.35
Erysipelas .. ..	..	0.55	0.19	0.14
Malaria	38.05	146.03	109.57	35.97
Measles .. ..	..	2.47	5.65	1.53

TABLE 10—(Contd.)

Diseases		1942	1943	1944	1945
	Mumps .. ..	..	1.10	3.51	1.95
	Sandfly fever ..	5.95	9.86	7.99	3.35
	T.B. pulmonary ..	..	3.01	6.63	2.37
	T.B. others ..	..	..	0.78	0.56
	Scabies	1.19	1.10	7.21	7.11
	Smallpox .. ..	..	0.55	0.39	0.42
	Scarlet fever ..	..	..	..	0.14
	Venereal diseases ..	..	0.27	1.95	1.81
	Others	1.19	9.86	26.71	25.52
	Total	54.70	194.79	195.15	105.97
(2)	<i>Neoplasms</i>				
	Tumour and cyst ..	2.38	1.10	5.07	1.95
(3)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Ductless or endocrine glands .. ..	..	0.55	0.78	0.42
	Diseases due to disorder of nutrition or of metabolism	1.19	1.37	0.39	1.67
	Total	1.19	1.92	1.17	2.09
(4)	<i>Diseases of the Blood and Blood forming organs</i> ..	4.76	9.59	11.31	8.09
(5)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	3.57	6.03	10.33	12.97
(6)	<i>Diseases of the Nervous system and Sense organs</i>				
	Diseases of the nervous system	1.19	2.84	9.36	6.13
	Diseases of the eye ..	1.19	4.39	4.87	4.74
	Diseases of the ear and nose	7.13	27.12	41.33	44.48
	Total	9.51	35.34	55.56	55.35
(7)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	1.19	0.82	1.56	1.39
	Valvular diseases of heart ..	1.19	..	0.19	..
	Disordered action of heart .. ..	..	2.19	1.17	1.25
	Others	1.19	2.74	5.07	3.63
	Total	3.57	5.75	7.99	6.27
(8)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	7.13	6.58	5.26	7.39
	Influenza .. ..	..	4.39	6.43	2.23
	Pneumonia .. ..	..	1.64	3.31	4.18
	Laryngitis and tracheitis ..	..	1.92	2.14	4.88

TABLE 10—(Contd.)

	Diseases	1942	1943	1944	1945
	Bronchi and Bronchioles	5.95	17.26	30.02	22.59
	Tonsillitis ..	13.08	35.07	45.04	30.12
	Pharyngitis ..	..	7.67	6.82	9.34
	Others ..	5.95	1.92	1.56	4.60
	Total ..	32.10	76.44	100.60	85.33
(9)	<i>Diseases of the Digestive system</i>				
	Diseases of the teeth and gums ..	1.19	4.11	3.70	3.76
	Gastritis ..	4.76	6.58	8.19	5.02
	Gastric ulcer ..	..	0.27	0.19	0.42
	Duodenal ulcer ..	..	0.27	0.19	0.14
	Diseases of the liver ..	3.57	3.56	8.97	8.37
	Others ..	16.65	55.34	69.21	61.63
	Total ..	26.16	70.14	90.46	79.34
(10)	<i>Diseases of the Genito-urinary system</i>				
	Diseases of female genital organs ..	8.32	27.67	59.66	47.41
	Diseases of the urinary system ..	3.57	12.33	11.70	6.27
	Diseases of the breast ..	1.19	..	0.78	0.70
	Total ..	13.08	40.00	72.14	54.38
(11)	<i>Diseases of the Skin and Cellular tissue</i>				
	Diseases of the areolar tissues ..	13.08	20.00	24.18	25.24
	Diseases of the skin ..	2.38	7.94	9.55	13.94
	Total ..	15.46	27.94	33.73	39.18
(12)	<i>Diseases of the Bones and Organs of movement</i> ..	2.38	6.58	14.04	9.06
(13)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	P.U.O ..	..	4.38	6.24	9.06
(14)	<i>All other diseases</i> ..	1.19	..	11.89	26.77
(15)	<i>All diseases</i> ..	170.04	480.00	615.68	495.81
(16)	<i>Accidents, Poisonings and violence</i>				
	General injuries ..	1.19	4.66	2.53	4.88
	Local injuries ..	13.08	18.63	29.44	22.87
	Injuries in action ..	..	..	..	..
	Poisons ..	..	7.12	2.14	0.70
	Total ..	14.27	30.41	34.12	28.44
(17)	<i>All cases</i> ..	184.30	510.41	649.80	524.26

TABLE 11

Relative casualty rates: WAC(I): India Command.

Specialist Groups	1942	1943	1944	1945
(1) Infective and parasitic diseases	29.68	38.16	30.03	20.21
(2) Neoplasms	1.29	0.21	0.78	0.37
(3) Allergic, endocrine system metabolic and nutritional diseases ..	0.65	0.38	0.18	0.40
(4) Diseases of the blood and blood forming organs ..	2.58	1.88	1.74	1.54
(5) Mental, psychoneurotic and personality disorders	1.94	1.18	1.59	2.47
(6) Diseases of the nervous system and sense organs	5.16	6.92	8.55	10.56
(7) Diseases of the circulatory system	1.94	1.13	1.23	1.20
(8) Diseases of the respiratory system	17.42	14.97	15.48	16.27
(9) Diseases of the digestive system	14.19	13.74	13.92	15.13
(10) Diseases of the genito-urinary system	7.10	7.84	11.10	10.37
(11) Diseases of the skin and cellular tissue	8.39	5.47	5.19	7.47
(12) Diseases of the bones and organs of movements	1.29	1.29	2.16	1.73
(13) Symptoms, senility and ill-defined conditions ..	..	0.86	0.96	1.73
(14) All other diseases	0.65	..	1.83	5.11
(15) All diseases	92.26	94.04	94.75	94.58
(16) Accidents, poisonings and violence	7.74	5.96	5.25	5.42
(17) All cases	100.00	100.00	100.00	100.00

Section III

INDIAN AND BRITISH OFFICERS

Morbidity and mortality history of Indian and British officers of Indian and British Service are shown together in Tables 12 to 16 due to non-availability of separate data regarding their morbidity or strength. This again is largely due to the non-provision in the basic monthly return AFA 31 of a suitable column for Indian Officers. In the early part of the War, the need for this was perhaps not pressing as the number of Indian Officers was not large enough.

The following table shows general morbidity rates separately for Officers, BORs, and VCOs and IORs during 1939-45.

General Morbidity rate per 1,000 in the India Command.

	1939	1940	1941	1942	1943	1944	1945
Officers ..	499.87	489.38	727.83	923.50	775.12	716.18	638.19
BORs ..	665.12	723.31	876.06	979.06	847.18	1014.47	862.96
VCOs and IORs ...	453.98	548.95	615.58	746.49	742.70	732.95	583.91

It appears from this table that BORs had higher overall rates than the officers and the latter had higher rates than the VCOs and IORs. The causes from which officers suffered higher rates were dysentery, diphtheria, enteric group of fevers, erysipelas, sandfly fever, scarlet fever, tumour and cyst, endocrine system, metabolic and nutritional diseases, mental diseases, ear and nose diseases, nervous diseases, circulatory diseases, influenza, laryngitis and tracheitis, tonsillitis, digestive diseases, genito-urinary diseases, diseases of bones and organs of movement and accidents, poisoning and violence.

The general admission rates to hospitals for officers not from all causes but from diseases were 440.0 in 1939; 434.0 in 1940; 670.1 in 1941; 845.7 in 1942; 712.7 in 1943; 661.5 in 1944 and 577.4 in 1945. About 2/5th of this sickness was due to malaria, dysentery, diseases of the aerolar tissue, tonsillitis and liver diseases. The manner in which these diseases fluctuated over the period under study in their incidence may be seen in Table 12. An interesting observation, however, about it may be made here. That is, except for dysentery which generally showed very small fluctuations in its incidence, all the rest of the diseases mentioned above did register an appreciable decline by 1945. Another point worth of notice is that Officers had a rate as low as the two-third of the VCOs and IORs rates from Malaria every year. Similar was the case with venereal diseases. Even so malaria each year took away 10 per cent. or more of sickness among the officers.

On the whole, the disease history for the officers in which that should have registered rates of overall incidence ranging between 500 to 924 per year within India does not seem to be encouraging.

As against large number of admissions, it will be seen that the death rate was kept under a fair control. For instance there were only 125 deaths in 1939; 109 in 1940; 98 in 1941; 86 in 1942; 42 in 1943; 30 in 1944 and 14 in 1945 producing rates per 1,000 strength of 3.66, 5.10, 4.53, 5.26, 4.18, 3.59 and 3.60 during 1939 to 1945 respectively. About more than one-half to one-third of these deaths were from accidents, poisonings and violence. Nervous diseases, enteric group of fevers, pneumonia, tumour and cyst, dysentery, cerebrospinal fever and malaria inflicted comparatively higher general death rates. This does not mean that these were also the most fatal diseases. Among the latter category, however, were cerebrospinal fever, tumour and cyst, enteric group of fevers and pneumonia. A greater percentage of those who suffered from these diseases were killed off as will be seen in the figures reproduced below:—

Case Fatality rate per cent. among Officers in the India Command.

	1939	1940	1941	1942	1943	1944	1945
Cerebrospinal fever	..	..	66.67	28.57	..	16.67	..
Tumour and cyst ..	12.50	15.38	3.70	19.05	6.06	10.94	2.99
Enteric group of fevers ..	..	11.11	7.69	18.18	24.56	9.88	13.21
Pneumonia ..	14.29	13.79	2.17	1.35	2.29	2.84	2.10

TABLE 12
Admissions to Hospitals—Annual Rates per 1,000 Strength,* Officers: India Command

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever ..	0.26	..	0.32	0.43	0.04	0.20	0.06
Diphtheria ..	3.40	2.04	3.24	2.81	2.56	1.29	1.30
Dysentery ..	27.70	34.68	46.93	62.25	52.81	67.70	63.44
Enteric group of fevers ..	1.83	1.53	1.40	2.69	2.43	2.67	1.53
Erysipelas ..	0.26	0.51	0.22	0.24	0.13	0.13	0.03
Malaria ..	41.29	46.74	62.78	117.71	119.26	105.27	53.39
Measles ..	0.78	1.53	1.40	0.37	1.15	1.12	0.63
Mumps ..	3.92	0.51	1.19	1.90	1.07	1.02	1.32
Sandfly fever ..	26.13	18.02	32.90	32.29	14.29	8.37	4.90
T.B. pulmonary ..	2.61	1.87	1.73	1.77	1.36	1.42	1.21
T.B. others ..	1.31	..	0.11	0.31	0.17	0.23	0.26
Smallpox ..	..	..	..	0.49	1.11	0.89	0.81
Scabies ..	..	..	0.43	1.90	3.33	2.70	1.99
Scarlet fever ..	0.26	0.51	1.08	0.37	0.17	0.07	0.37
Veneral diseases ..	0.52	0.51	2.91	9.72	7.00	5.55	11.17
Others ..	36.32	13.77	18.34	28.86	25.42	36.26	29.43
Total ..	146.59	122.22	174.98	264.09	232.30	236.88	171.84
(2) <i>Neoplasms</i>							
Tumour and cyst ..	2.09	2.21	2.91	1.28	2.82	2.11	1.93
(3) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>							
Ductless or endocrine glands ..	..	0.17	0.51	0.61	0.34	0.07	0.17
Diseases due to disorder of nutrition or of metabolism ..	1.57	2.21	3.24	1.53	0.85	1.38	1.44
Total ..	1.57	2.38	3.78	2.14	1.19	1.45	1.61
(4) <i>Diseases of the Blood and Blood forming organs</i> ..	3.14	2.72	5.61	4.65	4.31	4.58	4.29

TABLE 12—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(5) <i>Mental, Psychoneurotic and personality disorders</i>							
Mental diseases	5.23	3.74	7.34	7.95	9.26	12.79	14.57
(6) <i>Diseases of the Nervous system and sense organs</i>							
Diseases of the nervous system ..	12.80	10.20	11.97	18.04	11.00	9.56	7.49
Diseases of the eye	0.78	4.42	3.88	5.69	4.09	5.34	4.84
Diseases of the ear and nose ..	22.21	20.91	35.49	39.62	35.87	39.32	38.45
Total	35.80	35.53	51.35	63.35	50.97	54.22	50.77
(7) <i>Diseases of the Circulatory system</i>							
Rheumatic fever	0.26	0.85	0.76	1.53	1.49	1.02	0.35
Valvular diseases of heart ..	0.52	0.17	..	0.06	..	0.03	..
Disordered action of heart ..	1.05	2.55	1.73	0.98	1.49	1.45	0.69
Others	3.92	5.10	7.34	6.60	6.91	5.57	5.56
Total	5.75	8.67	9.82	9.17	9.90	8.08	6.59
(8) <i>Diseases of the Respiratory system</i>							
Common cold	9.15	9.52	14.78	13.76	11.94	10.25	7.03
Influenza	10.97	12.24	20.50	14.19	8.49	3.33	0.98
Pneumonia	3.66	4.93	4.96	4.52	5.59	4.65	4.12
Laryngitis and tracheitis ..	2.35	1.53	1.51	2.02	1.83	1.98	2.04
Bronchi and bronchioles ..	8.10	9.01	15.97	12.20	19.66	16.61	13.82
Tonsillitis	22.73	24.14	42.50	48.98	33.61	24.98	24.31
Pharyngitis	15.68	14.96	14.24	20.73	11.43	7.12	10.02
Others	1.83	3.23	4.10	5.26	3.03	3.69	3.40
Total	74.47	79.55	118.55	131.65	95.59	72.71	65.72
(9) <i>Diseases of the Digestive system</i>							
Diseases of the teeth and gums	4.70	3.74	3.45	5.81	4.18	3.69	2.97
Gastritis	9.41	7.82	13.81	12.11	10.32	9.23	8.73
Gastric ulcer .. ..	..	0.34	1.40	0.86	0.60	1.29	0.52

TABLE 12—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
Duodenal ulcer ..	..	0.68	1.40	1.77	1.49	1.15	0.84
Diseases of the liver ..	9.93	20.23	37.86	55.03	64.75	49.60	36.40
Others ..	70.81	70.88	135.38	150.91	107.15	93.01	86.97
Total ..	94.85	103.69	193.31	226.49	188.49	157.98	136.41
(10) <i>Diseases of the Genito-urinary system</i>							
Diseases of the male genital organs ..	1.83	2.38	4.53	7.28	6.61	6.06	9.62
Diseases of the urinary system ..	9.67	9.01	12.19	11.13	8.96	10.45	8.64
Diseases of the breast ..	2.87	..	..	..	0.04	0.13	0.06
Total ..	14.37	11.39	16.72	18.41	15.61	16.64	18.32
(11) <i>Diseases of the Skin and Cellular tissue</i>							
Diseases of the skin ..	10.19	9.18	14.67	25.31	21.88	28.74	36.31
Diseases of the areolar tissues ..	28.48	30.09	46.93	53.75	39.37	27.79	32.92
Total ..	38.67	39.27	61.60	79.06	61.25	56.53	69.23
(12) <i>Diseases of the Bones and Organs of movement</i> ..	14.11	12.58	16.50	21.83	19.88	19.61	16.07
(13) <i>Symptoms, Semility and Ill-defined conditions</i>							
P.U.O ..	0.78	0.33	1.29	1.10	7.93	5.08	5.70
All other diseases ..	2.61	9.69	6.36	14.49	13.22	12.92	14.37
All diseases ..	440.03	433.96	670.12	845.66	712.72	661.47	577.43
(14) <i>Accidents, Poisoning and violence</i>							
General injuries ..	5.75	3.57	6.69	15.16	7.76	7.45	10.31
Local injuries ..	52.52	48.44	48.98	61.58	52.55	45.91	49.53
Injuries in action ..	1.57	1.70	1.83	0.61	1.45	0.76	0.26
Poisons ..	..	1.70	0.22	0.49	0.64	0.59	0.66
Total ..	59.84	55.41	57.71	77.84	62.40	54.71	60.76
(17) <i>All cases</i> ..	499.87	489.38	727.83	923.50	775.12	716.18	638.19

TABLE 13
Relative Morbidity Rates: Officers: India Command

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever ..	0.06	..	0.05	0.05	0.01	0.03	0.01
Diphtheria ..	0.77	0.47	0.48	0.33	0.36	0.19	0.22
Dysentery ..	6.29	7.99	7.00	7.36	7.41	10.23	10.99
Enteric group of fevers ..	0.42	0.35	0.21	0.32	0.34	0.40	0.26
Erysipelas ..	0.06	0.12	0.03	0.03	0.02	0.02	0.004
Malaria ..	9.38	10.77	9.37	13.92	16.73	15.92	9.25
Measles ..	0.18	0.35	0.21	0.04	0.16	0.17	0.11
Mumps ..	0.89	0.12	0.18	0.22	0.15	0.15	0.23
Sandfly fever ..	5.94	4.15	4.91	3.82	2.00	1.27	0.85
Scabies ..	..	..	0.06	0.22	0.47	0.41	0.34
Smallpox ..	..	..	..	0.06	0.16	0.13	0.14
T.B. Pulmonary ..	0.59	0.43	0.26	0.21	0.19	0.21	0.21
T.B. others ..	0.30	..	0.02	0.04	0.02	0.03	0.04
Scarlet fever ..	0.06	0.12	0.16	0.04	0.02	0.01	0.06
Veneral diseases ..	0.12	0.12	0.43	1.15	0.98	1.14	1.94
Others ..	8.25	3.17	2.74	3.41	3.57	5.48	5.10
Total ..	33.31	28.16	26.11	31.23	32.59	35.81	29.76
(2) <i>Neoplasms</i>							
Tumour and cyst ..	0.48	0.51	0.43	0.15	0.39	0.32	0.33
(3) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>							
Ductless or endocrine glands ..	..	0.04	0.08	0.07	0.05	0.01	0.03
Diseases due to disorder of nutrition or of metabolism ..	0.36	0.51	0.48	0.18	0.12	0.21	0.25
Total ..	0.36	0.55	0.56	0.25	0.17	0.22	0.28
(4) <i>Diseases of the Blood and Blood forming organs</i>							
..	0.71	0.63	0.84	0.55	0.60	0.69	0.74

TABLE 13—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(5) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases	1.19	0.86	1.09	0.94	1.30	1.93	2.52
(6) <i>Diseases of the Nervous system and sense organs</i>							
Diseases of the nervous system ..	2.91	2.35	1.79	2.13	1.54	1.45	1.30
Diseases of the eye	0.18	1.02	0.58	0.67	0.57	0.81	0.84
Diseases of the ear and nose ..	5.05	4.82	5.30	4.69	5.03	5.94	6.66
Total	8.14	8.19	7.66	7.49	7.15	8.20	8.79
(7) <i>Diseases of the Circulatory system</i>							
Rheumatic fever	0.06	0.20	0.11	0.18	0.21	0.15	0.06
Valvular diseases of heart ..	0.12	0.04	..	0.01	..	0.004	..
Disordered action of heart ..	0.24	0.59	0.26	0.12	0.21	0.22	0.12
Others	0.89	1.18	1.09	0.78	0.97	0.84	0.96
Total	1.31	2.00	1.46	1.08	1.39	1.22	1.14
(8) <i>Diseases of the Respiratory system</i>							
Common cold	2.08	2.19	2.21	1.63	1.68	1.55	1.22
Influenza	2.49	2.82	3.06	1.68	1.19	0.50	0.17
Pneumonia	0.83	1.14	0.74	0.54	0.78	0.70	0.71
Laryngitis and tracheitis ..	0.53	0.35	0.23	0.24	0.26	0.30	0.35
Bronchi and bronchioles ..	1.84	2.08	2.38	2.62	2.76	2.51	2.39
Pharyngitis	3.56	3.45	2.12	2.45	1.60	1.08	1.74
Tonsillitis	5.17	5.56	6.34	5.79	4.72	3.78	4.21
Others	0.42	0.74	0.61	0.62	0.42	0.56	0.59
Total	16.92	18.33	17.69	15.57	13.41	10.98	11.38
(9) <i>Diseases of the Digestive system</i>							
Gastritis	2.14	1.80	2.06	1.43	1.45	1.40	1.51
Gastric ulcer .. ..	..	0.08	0.21	0.10	0.08	0.19	0.09
Duodenal ulcer .. ..	..	0.16	0.21	0.21	0.21	0.17	0.14

TABLE 13—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
Diseases of the liver ..	2.26	4.66	5.65	6.51	9.08	7.50	6.30
Diseases of the teeth and gums ..	1.07	0.86	0.52	0.69	0.59	0.56	0.51
Others ..	16.09	16.33	20.20	17.84	15.03	14.06	15.06
Total ..	21.56	23.89	28.85	26.78	26.45	23.88	23.62
(10) <i>Diseases of the Genito-urinary system</i>							
Diseases of the male genital organs ..	0.42	0.55	0.68	0.86	0.93	0.92	1.67
Diseases of the urinary system ..	2.20	2.08	1.82	1.32	1.26	1.58	1.50
Diseases of the breast ..	0.65	..	..	..	0.01	0.02	0.01
Total ..	3.27	2.62	2.50	2.18	2.19	2.52	3.17
(11) <i>Diseases of the Skin and Cellular tissue</i>							
Diseases of the skin ..	2.32	2.12	2.19	2.99	3.07	4.35	6.29
Diseases of the areolar tissue ..	6.47	6.93	7.00	6.36	5.52	4.20	5.70
Total ..	8.79	9.05	9.19	9.35	8.59	8.55	11.99
(12) <i>Diseases of the Bones and Organs of movement</i> ..	3.21	2.90	2.46	2.58	2.79	2.96	2.78
(13) <i>Symptoms, Senility and Ill-defined conditions</i> ..	0.18	0.08	0.19	0.13	1.11	0.77	0.99
PUO ..	0.59	2.23	0.95	1.71	1.86	1.95	2.49
(14) <i>All other diseases</i> ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00
(15) <i>All diseases</i> ..							

TABLE 14
Relative Casualty Rates: Officers: India Command.

[illegible]

TABLE 15
Annual Rates of Mortality per 1,000 Strength, Officers: India Command

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever ..	..	0.17	0.22	0.12	..	0.03	..
Dysentery ..	..	0.34	0.22	0.18	0.09	0.10	..
Enteric group of fevers ..	..	0.17	0.11	0.49	0.60	0.26	0.20
Malaria ..	..	..	0.11	0.18	..	..	0.12
Measles ..	..	..	..	0.06	..	..	..
T.B. pulmonary ..	..	..	..	0.12	0.13	..	0.06
Smallpox ..	..	..	..	0.06	0.04	0.20	0.03
Others ..	..	0.17	0.43	0.43	0.26	0.66	0.66
Total ..	..	0.85	1.08	1.65	1.11	1.25	1.07
(2) <i>Neoplasms</i>							
Tumour and cyst ..	0.26	0.34	0.11	0.24	0.17	0.23	0.06
(3) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>							
Diseases due to disorder of nutrition or of metabolism ..	..	..	..	..	..	..	0.09
(4) <i>Diseases of the Blood and Blood forming organs</i> ..	..	..	..	..	..	0.03	0.03
(5) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases ..	..	..	..	0.06	..	0.10	0.09
(6) <i>Diseases of the Nervous system and sense organs</i>							
Diseases of the nervous system ..	0.52	0.51	0.32	0.31	0.17	0.16	0.06
Diseases of ear and nose ..	..	..	..	..	..	..	0.06
Total ..	0.52	0.51	0.32	0.31	0.17	0.16	0.12

TABLE 15—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(7) <i>Diseases of the Circulatory system</i>							
Rheumatic fever ..	..	0.17	..	0.06	0.04	..	..
Valvular diseases of heart ..	..	..	..	0.06	0.13	..	0.09
Disordered action of heart ..	0.26	0.17	0.86	0.31	0.47	0.33	0.17
Others ..	0.26	0.34	0.86	0.43	0.64	0.33	0.26
Total ..							
(8) <i>Diseases of the Respiratory system</i>							
Pneumonia ..	0.52	0.68	0.11	0.06	0.13	0.13	0.09
Bronchi and bronchioles ..	..	..	0.11	0.12	..	..	0.06
Tonsillitis ..	0.26	..	0.11	..	0.09	0.03	..
Others ..	0.78	0.68	0.32	0.18	0.21	0.03	..
Total ..						0.20	0.14
(9) <i>Diseases of the Digestive system</i>							
Gastric ulcer ..	..	..	..	0.12	0.04	..	0.12
Diseases of the liver ..	..	..	0.32	0.31	0.21	0.23	0.26
Others ..	..	..	0.43	0.43	0.26	0.23	0.37
Total ..							
(10) <i>Diseases of the Genito-urinary system</i>							
Diseases of the male genital organs ..	..	..	0.11	..	0.04	..	..
Diseases of the urinary system ..	0.26	..	..	..	0.13	0.03	0.12
Total ..	0.26	..	0.11	..	0.17	0.03	0.12
(11) <i>Diseases of the Skin and Cellular tissue</i>							
Diseases of the areolar tissue ..	..	0.17	..	..	..	..	..
(12) <i>Diseases of the Bones and Organs of movement</i>							
Symptoms, Senility and Ill-defined conditions	..	..	..	..	0.04	..	0.03
PUO ..	..	..	..	..	..	..	0.03

TABLE 15—(Contd.)

Diseases		1939	1940	1941	1942	1943	1944	1945
(14)	<i>All other diseases</i> ..	..	..	..	0.06	..	0.03	..
(15)	<i>All diseases</i> ..	2.09	2.89	3.24	3.36	2.77	2.60	2.39
(16)	<i>Accidents, Poisonings and violence</i>							
	General injuries ..	0.52	0.34	0.32	0.92	0.51	0.16	0.35
	Local injuries ..	0.52	0.68	0.87	0.92	0.77	0.59	0.81
	Injuries in action ..	0.78	0.85	0.11	0.06	..	0.20	0.03
	Poisons ..	..	0.34	..	..	0.13	0.03	0.03
	Total ..	1.57	2.21	1.29	1.90	1.41	0.99	1.21
(17)	<i>All cases</i> ..	3.66	5.10	4.53	5.26	4.18	3.59	3.60

Section IV

BRITISH OTHER RANKS

The morbidity history of another important category of troops, the BORs will be covered in the present Section and in Tables 17 to 21. It covers all the BORs that were stationed in India during the war years. A table covering salient features of their history is produced below:—

General health statistics of BORs in the India Command.

	1939	1940	1941	1942	1943	1944	1945
Admission rate per 1,000 of strength in hospitals ..	665.12	723.31	876.06	979.06	847.18	1014.47	862.96
Death rate per 1,000 of strength in hospitals ..	2.69	2.77	4.19	5.39	3.02	3.33	2.29
Case fatality rate per cent. ..	0.41	0.38	0.48	0.55	0.36	0.33	0.26
Rate of average constantly sick per 1,000 of strength in hospitals ..	27.96	30.97	34.62	42.51	41.87	60.45	43.11
Rate of average constantly sick per 1,000 of strength in barracks ..	25.10	23.59	22.52	17.54	13.23	15.23	7.76

Two points emerge from the study of this table, first, that the admission rate was the highest in 1944, at 1014.5 and lowest in 1939 at 665.1, during the period under consideration; and that the death rate was the highest in 1942. Secondly, the history covering a study of hospital admissions only, as is the case in this volume, would at best cover a part of the total sickness and disability suffered by the troops. From the figures of average constantly sick in hospitals and barracks given in the above table, it will be seen that from 1/6th to a 100 per cent. cases were reported as constantly sick in barracks also when compared to those admitted into hospitals. What, therefore, follows is a story of hospital admissions only.

A break up of annual rate of incidence from "all causes" by months is shown in the table on page 329. It appears as if June to September every year supplied the peak period for overall casualty rates. A point of caution about these figures is that due to varying monthly strength of the troops the annual totals derived from the table on the next page may not exactly add to the annual rate shown in Table 17.

Among the specific diseases, important causes of sickness were malaria, dysentery, diarrhoea, venereal diseases, skin diseases, diseases of the aerolar tissues, local and general injuries, ear and nose diseases,

Monthly incidences (rate per 1,000) of admissions for "all causes" among BORs in the India Command.

Month	1939	1940	1941	1942	1943	1944	1945
January	46.4	51.7	49.6	63.4	60.1	62.8	66.4
February	38.0	54.3	41.5	54.6	52.8	62.8	74.2
March	44.2	53.2	58.6	60.6	59.7	71.2	86.1
April	45.4	58.7	58.7	72.9	68.4	76.0	88.4
May	56.3	62.2	68.6	80.5	67.7	93.7	79.0
June	58.1	64.4	75.7	96.9	69.0	98.3	86.1
July	69.3	74.7	91.3	78.9	80.5	106.1	91.4
August	71.7	67.1	95.9	95.7	78.3	114.7	87.3
September	69.8	62.2	84.2	90.5	79.5	103.2	71.0
October	67.1	67.1	92.3	88.6	79.9	94.2	62.2
November	59.4	71.0	80.1	77.5	58.7	75.7	49.0
December	43.5	46.9	56.8	67.8	49.5	75.7	41.2

tonsillitis, diseases of the liver, diseases of the male genital organs, dengue, sandfly fever, scabies, mental diseases, diseases of the nervous system, common cold, influenza, bronchi and bronchioles, pharyngitis, gastritis and diseases of the urinary system. Of these sandfly fever, influenza, bronchi and bronchioles, tonsillitis, pharyngitis, gastritis, diseases of the nervous system, common cold, and diseases of the aerolar tissues showed distinct signs of abatement over the period under study. In the case of the others, the rate of incidence increased from year to year.

It will be seen from Table 17 the incidence of malaria increased rapidly from year to year. The rate in 1944 was more than four times than the corresponding rate in 1939. It will, however, be noticed that its incidence fell down to about 1/2 in 1945 from what it was in 1944. A side light on malaria incidence is provided by its monthly incidence given in the following table. August to November each year provide peak period for the incidence of this disease except in 1945.

Monthly incidence of malaria (rate per 1,000) of strength among BORs in the India Command.

Month	1939	1940	1941	1942	1943	1944	1945
January	1.4	1.4	3.0	4.6	5.8	11.4	18.9
February	1.0	1.2	1.8	3.0	5.9	10.8	16.1
March	1.4	1.4	2.4	3.7	6.4	9.9	16.4
April	1.5	1.9	4.7	7.4	9.1	10.1	14.0
May	2.0	2.6	5.1	8.6	9.8	13.1	9.5
June	4.5	4.3	7.7	13.9	11.6	16.5	9.7
July	8.2	7.0	15.6	14.2	18.1	19.8	13.0
August	6.8	8.6	20.9	17.4	21.4	25.9	11.5
September	9.1	10.3	17.9	19.9	23.4	31.9	9.6
October	9.9	14.8	21.3	19.1	26.6	35.4	6.4
November	9.0	15.8	20.7	19.0	15.3	25.9	3.4
December	2.6	6.5	8.8	10.3	11.3	20.3	2.4

It would perhaps be of interest to quote here the spread of this disease over the different Commands set up in different regions of India at that time.

Incidence of malaria (rate per 1,000) among BORs by armies/commands.

Armies/Commands	1939	1940	1941	1942	1943	1944	1945
North Western Army ..	75.8	119.3	252.0	254.5	156.7	369.4	192.3
Eastern Command (1) ..	31.8	42.5	50.4	..	..	254.4	104.8
Southern Army ..	61.8	52.2	117.0	104.2	132.6	238.8	117.5
Central Command (2) ..	..	..	..	269.4	358.0	243.1	165.1
Western (I) District (3) ..	68.3	67.8	75.9	..	..	..	..

Quite obviously it may be seen from these figures that a large majority of malaria sickness were reported from North Western Army (formerly known as Northern Command) and Central Command.

A break down of annual malaria sickness by the type of disease is appended on page 331.

Benign tertian, Malignant tertian and Clinical malaria accounted for 98 or more per cent. of the total malaria cases. Of these the first two categories were responsible for 80 to 96 per cent.

From the figures given in Table 20 it appears as if malaria was not a direct cause of heavy mortality among BORs, despite the fact that it was responsible for the largest number of hospital admissions in each period.

An increasing rate of incidence from dysentery from year to year (Table 17) reflects upon a situation which was developing in this country owing to its near to a very unhealthy theatre of war next to its frontiers. From the figures reproduced in the table on page 332 it will be seen that dysentery bacillary proved the major infection. Clinical and protozoal dysentery showed increasing percentages from 1942 onward due perhaps to outside infection by the returning troops. A constant rate of about 10 to 11 per cent. of the cases from dysentery bacillary exudate also seems a surprising phenomena.

Like malaria, dysentery was also not a major cause of deaths among the troops. Unlike either of these, however, enteric group of fevers had a much higher rate of mortality as will be seen from the table on page 333.

Of the various types of fever included under this group typhoid seems to have been responsible for the highest death rate.

An annual rate of incidence from venereal diseases (Table 17) higher than that from dysentery must have caused some concern to medical authorities of that time. What is significant in these figures is the fact that the rate did not decline at all upto 1945. Of the various types of these diseases it will be seen from the table given on page 333 that the gonorrhoea was by far the largest single specific cause of morbidity.

Note: (1) In 1942, Eastern Command became a separate entity, known as Eastern-Army and later in 1943 was partitioned into 14th Army and Eastern Command, the latter reverting to India.

(2) Central Command was formed in 1942.

(3) Western (I) District was absorbed by North Western Army in 1942.

Malaria incidence by its different types among BORs in the India Command.

Types of malaria	1939		1940		1941		1942		1943		1944		1945	
	Rate per 1000	Percentage of total malaria cases	Rate per 1000	Percentage of total malaria cases	Rate per 1000	Percentage of total malaria cases	Rate per 1000	Percentage of total malaria cases	Rate per 1000	Percentage of total malaria cases	Rate per 1000	Percentage of total malaria cases	Rate per 1000	Percentage of total malaria cases
Clinical ..	1.67	2.87	1.64	2.24	25.47	17.64	16.20	9.87	26.91	13.56	10.51	4.23	11.02	8.44
Quartan ..	0.44	0.76	0.13	0.17	0.17	0.12	0.75	0.46	0.15	0.08	0.48	0.19	0.21	0.16
Benign tertian ..	41.09	70.73	54.24	73.87	90.97	63.02	109.40	66.65	136.23	68.67	208.21	83.83	112.85	86.41
Malignant tertian ..	13.95	24.01	16.48	22.45	26.64	18.45	36.41	22.18	34.10	17.19	26.96	10.86	5.79	4.44
Cachexia ..	0.00	0.00	0.00	0.00	0.06	0.04	0.14	0.08	0.02	0.01	0.04	0.02	0.06	0.04
Mixed ..	0.95	1.63	0.93	1.27	1.05	0.73	1.24	0.76	0.98	0.49	2.16	0.87	0.67	0.51
Total malaria ..	58.10	100.00	73.42	100.00	144.36	100.00	164.14	100.00	198.39	100.00	248.36	100.00	130.60	100.00

Incidence of dysentery among BORs in the India Command from 1939 to 1945.

Types of dysentery	1939		1940		1941		1942		1943		1944		1945	
	Rate per 1000	Percentage of total dysentery cases	Rate per 1000	Percentage of total dysentery cases	Rate per 1000	Percentage of total dysentery cases	Rate per 1000	Percentage of total dysentery cases	Rate per 1000	Percentage of total dysentery cases	Rate per 1000	Percentage of total dysentery cases	Rate per 1000	Percentage of total dysentery cases
Dysentery clinical	5.33	18.4	6.31	19.1	10.60	28.8	19.19	38.2	19.26	39.5	20.43	28.2	14.11	19.6
Dysentery Protozoal	2.64	9.1	2.80	8.5	3.99	10.8	6.52	13.0	8.36	17.1	17.75	24.5	10.98	15.2
Dysentery bacillary proved	17.86	61.6	20.46	62.0	18.32	49.7	19.18	38.2	16.95	34.8	26.90	37.1	39.49	54.8
Dysentery bacillary exudate	3.17	10.9	3.42	10.4	3.96	10.7	5.31	10.6	4.19	8.6	7.43	10.2	7.48	10.4
Total Dysentery	29.00	100.00	33.00	100.0	36.87	100.0	50.20	100.0	48.76	100.00	72.51	100.0	72.07	100.0
Death rate per 1000 of strength	0.06		0.06		0.11		0.39		0.18		0.03		0.06	
Case fatality rate per cent.	0.19		0.19		0.31		0.78		0.36		0.03		0.08	

Incidence and death rate per 1,000 of enteric group of fevers among BORs in the India Command.

Types of enteric group of fevers	1939	1940	1941	1942	1943	1944	1945
Typhoid fever ..	0.39	0.40	0.37	0.92	0.41	0.69	0.38
Paratyphoid 'A' ..	0.19	0.59	0.23	0.03	0.07	0.09	0.06
Paratyphoid 'B' ..	0.06	..	0.03	..	0.03	0.03	0.01
Paratyphoid 'C' ..	..	..	..	..	..	0.01	..
Enteric group ..	0.44	0.25	0.23	0.64	0.23	0.38	0.28
Total	1.08	1.24	0.85	1.59	0.74	1.21	0.72
Death	0.06	..	0.09	0.23	0.11	0.17	0.07
Case fatality rate per cent.	5.13	..	10.00	14.71	14.61	13.82	9.62

Incidence rate per 1,000 for venereal diseases among BORs in the India Command.

Venereal Diseases	1939	1940	1941	1942	1943	1944	1945
Gonorrhoea ..	32.73	30.94	33.76	27.05	26.33	31.59	25.60
Syphilis ..	8.45	12.75	12.65	9.54	8.19	9.44	11.74
Soft chancre ..	9.08	8.86	4.50	9.68	12.24	8.28	2.90
Other VD ..	2.81	5.63	13.59	23.29	17.20	22.70	39.63
Total VD ..	53.07	58.19	64.50	69.56	63.96	72.01	79.87

Another table is also reproduced below from which it will become clear that there is not much monthly variations in the incidence of venereal diseases over the period under consideration.

Monthly incidence rate per 1,000 for venereal diseases among BORs in the India Command.

Month	1939	1940	1941	1942	1943	1944	1945
January ..	4.7	7.1	7.9	7.0	6.1	6.4	6.7
February ..	3.4	4.9	6.7	5.1	5.8	5.0	6.3
March ..	4.5	4.6	7.4	5.9	6.0	5.3	9.4
April ..	2.9	3.7	5.5	6.4	6.7	5.4	8.5
May ..	4.1	3.6	4.7	4.4	5.1	5.8	7.7
June ..	3.8	4.7	5.7	6.1	4.8	4.8	7.1
July ..	2.9	5.0	5.4	5.0	5.4	5.8	6.9
August ..	3.7	4.9	5.2	5.6	5.4	5.7	6.2
September ..	4.9	4.1	4.1	5.0	4.9	5.8	5.6
October ..	7.2	5.4	4.1	6.8	4.8	5.6	6.6
November ..	4.8	5.6	4.7	6.9	4.7	5.1	5.4
December ..	4.5	8.4	4.6	6.5	3.7	6.4	4.1

In relative term (Table 18) malaria was responsible from 10 to 26 per cent. of total sickness between these years; dysentery from 5 to 9 per cent.; venereal diseases from 8 to 10 per cent.; diseases of the skin and of the aerolar tissues from 5 to 8 and 4 to 10 per cent. respectively.

Among the groups of causes "infective and parasitic diseases" was the greatest single group from the point of incidence. It caused 30 to 45 per cent. of all casualties in the India Command from year to year. The other groups which though of comparatively subdued incidence, but none-the-less important, were respiratory diseases, diseases of the skin and cellular tissue and casualties due to accidents, poisonings and violence (Table 19).

TABLE 17
Admissions to Hospitals—Annual rates per 1,000 strength: BORs: India Command.

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever	0.08	0.19	0.06	0.19	0.13	0.06	0.10
Cholera	..	0.03	0.71	0.02	0.03	0.06	0.11
Dengue	..	6.81	11.11	11.56	8.41	18.72	9.58
Diphtheria	..	2.46	3.56	3.92	1.34	1.12	1.39
Dysentery	..	33.00	36.87	50.20	48.76	72.51	72.07
Enteric group of fevers	..	1.08	0.85	1.59	0.74	1.21	0.72
Erysipelas	..	0.03	0.37	0.14	0.15	0.08	0.07
Malaria	..	58.10	144.36	164.14	198.39	248.36	130.60
Measles	..	0.28	0.88	0.79	0.38	0.65	0.23
Mumps	..	0.25	0.71	0.67	0.34	0.33	0.53
Oriental sore	..	0.67	0.26	0.34	0.11	0.04	0.03
Kala-azar	..	0.08	0.14	0.06	0.04	0.15	0.17
Pediculosis	..	0.39	..	..	..	..	..
Plague	0.02	..
Polio-myelitis	0.03	0.33	0.14	0.36	0.49
Sandfly fever	..	25.75	38.06	25.25	12.14	7.47	5.33
Scabies	..	1.74	4.99	15.47	13.59	13.24	9.82
Smallpox	..	0.37	0.17	0.93	0.77	1.20	0.63
T.B. pulmonary	..	2.21	1.91	1.34	0.87	0.99	1.00
T.B. others	..	0.16	0.28	0.16	0.22	0.15	0.14
Scarlet fever	..	0.50	0.31	0.20	0.04	0.03	0.06
Typhus fever	..	0.93	0.63	0.37	0.50	2.33	0.73
Trachoma (conjunctivitis, granular)	..	1.62	2.54	2.80	2.53	3.18	3.31
Veneral diseases	..	58.19	64.50	69.56	63.96	72.01	79.87
Others	..	8.43	6.18	6.96	8.19	14.19	14.45
Total ..	201.10	220.71	319.37	357.01	361.80	458.46	331.45

TABLE 17—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(2) <i>Neoplasms</i>							
Tumour and cyst ..	3.25	2.30	1.85	2.40	2.20	2.24	2.56
(3) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>							
Ductless or endocrine glands ..	0.25	0.28	0.26	0.79	0.26	0.62	0.17
Diseases due to disorder of nutrition or of metabolism ..	0.22	0.16	0.37	0.36	0.17	0.40	0.26
Total ..	0.47	0.44	0.63	1.15	0.43	1.02	0.42
(4) <i>Diseases of the Blood and Blood-forming organs</i> ..	7.39	8.71	7.44	7.24	5.69	5.52	4.91
(5) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases ..	2.95	3.20	4.56	5.32	4.68	12.46	13.23
(6) <i>Diseases of the Nervous system and sense organs</i>							
Diseases of the nervous system ..	9.81	10.85	11.62	11.01	8.03	8.61	6.69
Diseases of the eye ..	2.19	2.39	2.14	3.30	3.41	4.44	4.17
Diseases of the ear and nose ..	28.23	33.31	30.83	37.50	31.24	50.49	52.98
Total ..	40.23	46.56	44.59	51.80	42.68	63.54	63.85
(7) <i>Diseases of the Circulatory system</i>							
Rheumatic fever ..	1.72	1.68	2.79	1.84	1.44	1.08	0.71
Valvular diseases of heart ..	0.39	0.56	0.08	0.14	0.08	0.02	0.03
Disordered action of heart ..	2.86	2.30	2.22	1.00	0.89	1.05	0.61
Others ..	2.06	2.83	4.62	5.96	4.89	5.71	3.76
Total ..	7.03	7.37	9.72	8.93	7.31	7.85	5.11
(8) <i>Diseases of the Respiratory system</i>							
Common cold ..	11.20	9.27	19.40	13.39	14.75	13.72	8.78
Influenza ..	9.31	12.10	11.65	10.99	4.18	2.02	0.41
Pneumonia ..	4.69	5.97	6.52	4.54	3.20	4.01	3.34

TABLE 17—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(9)							
Laryngitis and tracheitis ..	1.81	1.77	1.25	3.14	1.23	1.86	1.85
Bronchi and bronchioles ..	19.20	20.99	24.99	22.15	16.32	20.77	16.49
Tonsillitis ..	34.39	43.20	35.90	45.00	26.98	26.25	26.31
Pharyngitis ..	14.78	15.33	16.72	14.88	8.87	7.69	8.67
Others ..	2.36	2.86	3.70	4.00	4.24	4.14	3.25
Total ..	97.74	111.49	120.14	118.10	79.78	80.46	69.08
<i>Diseases of the Digestive system</i>							
Diarrhoea ..	18.17	24.97	55.41	72.68	43.56	53.19	45.58
Gastritis ..	6.83	8.52	10.97	13.37	7.39	10.59	7.89
Gastric ulcer ..	..	0.99	0.97	0.96	0.48	1.52	0.54
Duodenal ulcer ..	..	1.09	0.88	0.89	0.54	1.08	0.42
Diseases of the liver ..	1.97	10.08	17.61	18.69	28.83	39.03	27.16
Diseases of the teeth and gums ..	2.81	3.82	3.28	3.53	3.01	3.19	3.51
Others ..	47.40	44.88	52.02	62.40	45.14	50.69	42.51
Total ..	77.18	94.35	141.14	172.53	128.96	159.30	127.62
(10)							
<i>Diseases of the Genito-urinary system</i>							
Diseases of male genital organs ..	17.31	17.94	18.92	17.61	17.36	17.83	21.15
Diseases of the urinary system ..	7.06	7.74	8.60	11.86	10.23	12.75	8.82
Diseases of the breast ..	0.22	0.06	0.11	0.06	0.04	0.09	0.11
Total ..	24.59	25.75	27.64	29.53	27.63	30.67	30.09
(11)							
<i>Diseases of the Skin and Cellular Tissue</i>							
Diseases of the skin ..	41.87	45.03	40.66	55.54	37.12	50.10	64.96
Diseases of the acrolar tissue ..	60.35	62.82	62.08	62.30	44.91	40.24	42.35
Total ..	102.22	107.85	102.74	117.84	82.03	90.34	107.32
(12)							
<i>Diseases of the Bones and Organs of movement</i>	29.56	22.73	22.91	24.13	18.27	22.80	18.86
(13)							
<i>Malformation</i>	0.31	0.03	0.23	0.14	0.27	0.19	0.29

TABLE 17—(Contd.)

Diseases		1939	1940	1941	1942	1943	1944	1945
(14)	<i>Symptoms, Senility and Ill-defined conditions</i>							
	P.U.O. ..	0.17	0.44	0.51	1.46	17.74	6.83	6.62
(15)	<i>All other diseases</i> ..	4.17	4.11	6.47	7.86	15.06	13.62	21.20
(16)	<i>All diseases</i> ..	598.36	656.04	809.93	905.48	794.53	955.37	802.62
(17)	<i>Accidents, Poisonings and violence</i>							
	General injuries ..	3.42	8.21	9.77	22.12	7.28	10.26	15.80
	Local injuries ..	61.40	56.72	55.67	49.73	44.80	47.77	43.79
	Injuries in action ..	1.61	2.05	0.26	1.06	0.11	0.63	0.07
	Poisons ..	0.33	0.30	0.43	0.67	0.47	0.44	0.68
	Total ..	66.76	67.27	66.13	73.58	52.65	59.10	60.34
(18)	<i>All cases</i> ..	665.12	723.31	876.06	979.06	847.18	1,014.47	862.96

TABLE 18
Relative morbidity rates: BORs: India Command.

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever	0.01	0.03	0.01	0.02	0.02	0.01	0.01
Cholera	..	0.004	0.09	0.002	0.004	0.01	0.01
Dengue	1.60	1.04	1.37	1.28	1.06	1.96	1.19
Diphtheria	0.30	0.37	0.44	0.43	0.17	0.12	0.17
Dysentery	4.85	5.03	4.55	5.54	6.14	7.59	8.98
Enteric group of fevers	0.18	0.19	0.11	0.18	0.09	0.13	0.09
Erysipelas	0.004	0.05	0.05	0.02	0.02	0.01	0.01
Malaria	9.71	11.19	17.82	18.13	24.97	26.00	16.27
Measles	0.05	0.26	0.11	0.09	0.05	0.07	0.03
Mumps	0.04	0.11	0.07	0.07	0.04	0.03	0.07
Oriental sore	0.11	0.11	0.03	0.04	0.01	0.004	0.004
Kala-azar	0.01	0.01	0.02	0.01	0.01	0.02	0.02
Pediculosis	0.07	0.02	..	..	..	..	..
Plague	..	..	..	..	..	0.002	..
Polymyelitis	0.01	..	0.003	0.04	0.02	0.03	0.06
Sandfly fever	5.13	3.93	4.70	2.79	1.53	0.78	0.66
Scabies	0.36	0.27	0.62	1.71	1.71	1.39	1.22
Scallpox	0.02	0.06	0.02	0.10	0.10	0.13	0.08
T.B. pulmonary	0.18	0.34	0.24	0.15	0.11	0.10	0.12
T.B. others	0.03	0.02	0.04	0.02	0.03	0.02	0.02
Scarlet fever	..	0.08	0.04	0.02	0.01	0.003	0.01
Typhus fever	0.14	9.14	0.08	0.04	0.06	0.24	0.09
Trachoma (conjunctivitis, granular)	0.38	0.25	0.31	0.31	0.32	0.33	0.41
Veneral diseases	8.87	8.87	7.96	7.68	8.05	7.54	9.95
Others	1.56	1.28	0.76	0.77	1.03	1.49	1.80
Total ..	33.61	33.64	39.43	39.43	45.54	47.99	41.30

TABLE 18—(Contd.)

Diseases		1939	1940	1941	1942	1943	1944	1945
(2)	<i>Neoplasms</i>							
	Tumour and cyst ..	0.54	0.35	0.23	0.26	0.28	0.23	0.32
(3)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>							
	Ductless or endocrine glands ..	0.04	0.04	0.03	0.09	0.03	0.06	0.02
	Diseases due to disorder of nutrition or of metabolism ..	0.04	0.02	0.05	0.04	0.02	0.04	0.03
	Total	0.08	0.07	0.08	0.13	0.05	0.11	0.05
(4)	<i>Diseases of the Blood and Blood forming organs</i> ..	1.23	1.33	0.92	0.80	0.72	0.58	0.61
(5)	<i>Mental, Psychoneurotic and Personality disorders</i>							
	Mental diseases	0.49	0.49	0.56	0.59	0.59	1.30	1.65
(6)	<i>Diseases of the Nervous system and sense organs</i>							
	Diseases of the nervous system ..	1.64	1.65	1.44	1.22	1.01	0.90	0.83
	Diseases of the eye ..	0.37	0.36	0.26	0.36	0.43	0.46	0.52
	Diseases of the ear and nose ..	4.72	5.08	3.81	4.14	3.93	5.29	6.60
	Total	6.72	7.10	5.51	5.72	5.37	6.65	7.95
(7)	<i>Diseases of the Circulatory system</i>							
	Rheumatic fever	0.29	0.26	0.34	0.20	0.18	0.11	0.09
	Valvular diseases of heart ..	0.07	0.09	0.01	0.02	0.01	0.001	0.003
	Disordered action of heart ..	0.48	0.35	0.27	0.11	0.11	0.11	0.08
	Others	0.34	0.43	0.57	0.66	0.62	0.60	0.47
	Total	1.17	1.12	1.20	0.99	0.92	0.82	0.64
(8)	<i>Diseases of the Respiratory system</i>							
	Common cold	1.87	1.41	2.40	1.48	1.86	1.44	1.09
	Influenza	1.56	1.84	1.44	1.21	0.53	0.21	0.05
	Pneumonia	0.78	0.91	0.81	0.50	0.40	0.42	0.42
	Laryngitis and tracheitis ..	0.30	0.27	0.15	0.35	0.15	0.19	0.23
	Bronchi and bronchioles ..	3.21	3.20	3.08	2.45	2.05	2.17	2.05

TABLE 18—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(9) <i>Diseases of the Digestive system</i>							
Tonsillitis	5.75	6.58	4.43	4.97	3.40	2.75	3.28
Pharyngitis	2.47	2.34	2.06	1.64	1.12	0.80	1.08
Others	0.39	0.44	0.46	0.44	0.53	0.43	0.40
Total	16.33	16.99	14.83	13.04	10.04	8.42	8.61
<i>Diarrhoea</i>	3.04	3.81	6.84	8.03	5.48	5.57	5.68
<i>Gastritis</i>	1.14	1.30	1.35	1.48	0.93	1.11	0.98
<i>Gastric ulcer</i> .. ..	..	0.15	0.12	0.11	0.06	0.16	0.07
<i>Duodenal ulcer</i> .. ..	..	0.17	0.11	0.10	0.07	0.11	0.05
<i>Diseases of the liver</i>	0.33	1.53	2.17	2.06	3.63	4.09	3.38
<i>Diseases of the teeth and gums</i>	0.47	0.58	0.40	0.39	0.38	0.33	0.44
<i>Others</i>	7.92	6.84	6.42	6.89	5.68	5.31	5.30
Total	12.90	14.38	17.43	19.06	16.23	16.68	15.90
(10) <i>Diseases of the Genito-urinary system</i>							
<i>Diseases of male genital organs</i>	2.89	2.74	2.34	1.94	2.19	1.87	2.64
<i>Diseases of the urinary system</i>	1.18	1.18	1.06	1.31	1.29	1.33	1.10
<i>Diseases of the breast</i>	0.03	0.01	0.01	0.01	0.01	0.01	0.01
Total	4.11	3.93	3.41	3.26	3.48	3.21	3.75
(11) <i>Diseases of the Skin and Cellular tissue</i>							
<i>Diseases of the skin</i>	7.00	6.86	5.02	6.13	4.67	5.24	8.22
<i>Diseases of the acrolar tissues</i>	10.09	9.58	7.66	6.88	5.65	4.21	5.15
Total	17.08	16.44	12.68	13.01	10.32	9.46	13.37
(12) <i>Diseases of the Bones and Organs of movement</i>	4.94	3.47	2.83	2.66	2.30	2.39	2.35
(13) <i>Malformation</i>	0.05	0.01	0.03	0.02	0.03	0.02	0.04
(14) <i>Symptoms, Senility and Ill-defined conditions</i>							
<i>PUO</i>	0.06	0.07	0.06	0.16	2.23	0.71	0.82
<i>All other diseases</i>	0.70	0.63	0.80	0.87	1.89	1.43	2.64
(15) <i>All diseases</i>	100.00	100.00	100.00	100.00	100.00	100.00	100.00
(16) <i>All diseases</i>							

TABLE 20

Annual rates of mortality per 1,000 strength: BORs: India Command.

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever ..	0.03	..	..	..	0.02	0.01	0.01
Cholera ..	..	0.06	0.11	0.02	..	0.02	0.03
Diphtheria ..	..	0.06	..	0.05	0.01	0.02	0.01
Dysentery ..	0.06	..	0.11	0.39	0.18	0.03	0.06
Enteric group of fevers ..	0.06	..	0.09	0.23	0.11	0.17	0.07
Malaria ..	0.11	..	0.11	0.59	0.24	0.21	0.10
Measles ..	..	..	..	..	..	0.02	..
Kala-azar ..	..	..	..	..	0.02	0.01	..
Polio-myelitis ..	0.06	..	0.03	0.14	0.06	0.13	0.12
Smallpox ..	..	0.03	..	0.16	0.18	0.17	0.07
T.B. pulmonary ..	0.08	0.06	0.11	0.33	0.12	0.13	0.07
T.B. others ..	0.03	..	0.03	0.02	0.01	0.03	0.03
Scarlet fever ..	..	..	..	..	0.01	..	..
Typhus fever ..	0.03	0.03	0.03	0.03	0.02	0.07	0.01
Veneral diseases ..	0.03	..	..	..	0.01	0.03	..
Others ..	0.11	0.06	0.20	0.09	0.08	0.10	0.04
Total ..	0.58	0.34	0.83	2.04	1.05	1.15	0.63
(2) <i>Neoplasms</i>							
Tumour and cyst ..	0.03	0.09	0.06	0.05	0.13	0.08	0.03
(3) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>							
Ductless or endocrine glands ..	..	..	..	0.02	0.01	..	..
Diseases due to disorder of nutrition or of metabolism ..	..	..	..	..	0.01	..	0.01
Total ..	..	..	..	0.02	0.02	..	0.01

TABLE 20—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(4) <i>Diseases of the Blood and Blood forming organs</i> .. ..	..	0.12	0.11	0.02	0.04	0.09	0.02
(5) <i>Mental, Psychoneurotic and Personality disorders</i> .. ..	..	..	0.03	0.02	0.02	0.04	0.01
(6) <i>Mental diseases</i> .. ..	..	..	..	..	..	..	..
<i>Diseases of the Nervous system and sense organs</i> .. ..	..	..	..	..	..	..	..
<i>Diseases of the nervous system</i>	0.11	0.16	0.28	0.19	0.08	0.08	0.10
<i>Diseases of the ear and nose</i> .. ..	..	..	0.09	0.03	0.02	0.03	0.01
Total	0.11	0.16	0.37	0.22	0.09	0.11	0.10
(7) <i>Diseases of the Circulatory system</i> .. ..	..	..	0.03	..	..	..	..
Rheumatic fever .. ..	..	..	0.09	..	..	..	..
Valvular diseases of heart	0.06	0.03	0.06	0.03	0.04	0.02	0.02
Disordered action of heart	0.14	0.09	0.26	0.14	0.08	0.09	0.07
Others	0.19	0.12	0.43	0.17	0.12	0.11	0.09
Total	0.14	0.06	0.17	0.23	0.14	0.13	0.08
(8) <i>Diseases of the Respiratory system</i> .. ..	..	..	0.03	0.03	..	0.02	..
Pneumonia .. ..	..	..	..	0.03	0.03	0.03	0.06
Bronchi and bronchioles .. ..	..	..	0.20	0.30	0.17	0.17	0.14
Others	0.14	0.06	..	..	..	..	..
Total	0.14	0.06	0.20	0.30	0.17	0.17	0.14
(9) <i>Diseases of the Digestive system</i> .. ..	..	..	0.03	0.05	..	..	0.01
Gastritis .. ..	..	..	0.03	0.02	..	0.01	..
Gastric ulcer .. ..	..	..	0.03	..	..	0.01	..
Duodenal ulcer	0.03	..	0.09	0.05	0.07	0.15	0.13
Diseases of the liver	0.33	0.16	0.37	0.37	0.22	0.21	0.10
Others	0.36	0.16	0.54	0.48	0.28	0.37	0.24
Total	0.36	0.16	0.54	0.48	0.28	0.37	0.24

TABLE 20—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(10) <i>Diseases of the Genito-urinary system</i>							
Diseases of male genital organs	0.06	0.03	0.03	0.02	0.05	0.05	0.02
Diseases of the urinary system ..	0.06	0.03	0.11	0.03	0.05	0.05	0.02
Diseases of the breast ..							
Total							
(11) <i>Diseases of the Skin and Cellular tissue</i>							
Diseases of the skin ..	..	..	..	0.03	0.01	0.01	..
Diseases of the acrolar tissues ..	..	0.03	..	0.06	0.05	0.04	0.01
Total .. ..	..	0.03	..	0.09	0.06	0.05	0.01
(12) <i>Diseases of the Bones and Organs of movement</i>							
.. ..	..	..	0.03	0.05	0.02	0.03	0.01
(13) <i>Malformation</i>	..	..	..	..	..	..	0.01
(14) <i>Symptoms, Senility and Ill-defined conditions</i>							
PUO .. ..	..	..	..	..	..	0.02	0.01
(15) <i>All other diseases</i>	..	..	..	..	..	0.02	0.03
(16) <i>All diseases</i>	1.47	1.12	2.71	3.49	2.05	2.28	1.36
(17) <i>Accidents, Poisoning and violence</i>							
General injuries ..	0.39	0.53	0.54	1.35	0.58	0.57	0.50
Local injuries ..	0.36	0.50	0.88	0.40	0.36	0.46	0.41
Injuries in action ..	0.42	0.62	0.06	0.12	0.03	..	..
Poisons ..	0.06	..	..	0.02	..	0.02	0.01
Total	1.22	1.65	1.48	1.90	0.97	1.05	0.93
(18) <i>All cases</i>	2.69	2.77	4.19	5.39	3.02	3.33	2.29

Section V

MILITARY NURSING SERVICE (MNS(BS))

The number of such troops was not sufficient during any year under study to warrant any valid conclusion be drawn from the limited data available about their sickness, as given in Tables 22 and 23. For whatever they are worth, a few conclusions do emerge from them.

(i) These female troops seem to be specially vulnerable to diseases like dysentery, tonsillitis, mental conditions, ear and nose diseases, pharyngitis, gastritis, in so far as the rates of incidence from these were very much higher than the corresponding rates for male troops.

(ii) As against this, must be said the fact of their having suffered a very much lower rate of sickness from malaria, venereal diseases, common cold and the like.

If the overall rates of sickness be any guide even during the years of 1944 and 1945 when the number of these troops was in the neighbourhood of 2,000, the conclusion seems inescapable that the women troops did not fare better than the male troops in the India Command during these years.

TABLE 22

Admissions to Hospitals—Annual rates per 1,000 strength: MNS(BS): India Command.

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	..	1.28	..	..
Diphtheria ..	4.17	7.70	3.48	3.28
Dysentery ..	62.59	100.13	116.91	157.92
Enteric group of fevers ..	2.78	2.57	3.48	5.46
Erysipelas ..	1.39	..	0.70	0.55
Malaria ..	66.76	80.87	83.51	57.92
Measles ..	5.56	8.99	0.70	3.28
Mumps ..	2.78	3.85	0.70	5.46
Sandfly fever ..	29.21	19.26	15.31	8.20
T.B. pulmonary ..	2.78	5.13	9.05	3.83
T.B. others ..	..	1.28	..	1.64
Scabies ..	1.39	..	0.70	4.92
Smallpox ..	..	1.28	1.39	..
Scarlet fever ..	..	..	..	..
Venereal diseases ..	..	..	0.70	1.09
Others ..	33.38	33.38	66.81	73.22
Total ..	212.79	265.72	303.41	326.78

TABLE 22—(Contd.)

Diseases		1942	1943	1944	1945
(2)	<i>Neoplasms</i>				
	Tumour and cyst ..	2.78	2.57	6.96	6.56
(3)	<i>Allergic, endocrine system, Metabolic and Nutritional diseases</i>				
	Ductless or endocrine glands ..	1.39	2.57	..	1.09
	Diseases due to disorder of nutrition or of metabolism ..	1.39	1.28	..	1.64
	Total ..	2.78	3.85	..	2.70
(4)	<i>Diseases of the Blood and blood forming organs ..</i>	13.91	11.55	7.65	12.02
(5)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	6.95	15.40	17.40	26.78
(6)	<i>Diseases of the Nervous system and sense organs</i>				
	Diseases of nervous system ..	20.86	8.99	13.92	18.58
	Diseases of the eye ..	..	5.13	4.87	5.46
	Diseases of the ear and nose ..	33.38	46.21	66.81	77.05
	Total ..	54.24	60.33	85.59	101.09
(7)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	2.78	6.42	2.09	2.19
	Valvular diseases of heart	1.39	..	..	..
	Disordered action of heart ..	..	..	1.39	..
	Others ..	6.95	15.40	6.96	4.37
	Total ..	11.13	21.82	10.44	6.56
(8)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	11.13	6.42	6.96	8.20
	Influenza ..	8.34	12.84	4.87	1.09
	Pneumonia ..	6.95	8.99	7.65	2.19
	Laryngitis and tracheitis	5.56	12.84	10.44	3.28
	Bronchi and Bronchioles	22.25	47.50	19.48	22.95
	Tonsillitis ..	54.24	103.98	50.10	60.66
	Pharyngitis ..	5.56	19.26	12.53	20.77
	Others ..	5.56	12.84	7.65	..
	Total ..	119.61	224.65	119.69	11.13
(9)	<i>Diseases of the Digestive system</i>				
	Diseases of the teeth and gums ..	9.74	11.55	6.26	..
	Gastritis ..	5.56	20.54	11.13	15.85
	Gastric ulcer ..	..	..	1.39	0.55
	Duodenal ulcer ..	2.78	1.28	2.09	1.09

TABLE 22—(Contd.)

Diseases		1942	1943	1944	1945
	Diseases of the liver ..	23.64	23.11	36.19	38.25
	Others ..	154.38	137.35	149.62	230.60
	Total ..	196.11	193.84	206.68	286.34
(10)	<i>Diseases of the Genito-urinary system</i>				
	Diseases of female genital organs ..	25.03	48.78	41.06	61.20
	Diseases of the urinary system ..	9.74	20.54	28.53	28.96
	Diseases of the breast ..	2.78	..	2.09	0.55
	Total ..	37.55	69.32	71.68	90.71
(11)	<i>Diseases of the Skin and Cellular tissue</i>				
	Diseases of the acrolar tissues ..	38.94	46.21	54.28	68.31
	Diseases of the skin ..	20.86	19.26	17.40	42.62
	Total ..	59.80	65.47	71.68	110.93
(12)	<i>Diseases of the Bones and Organs of movements</i> ..	13.91	30.81	32.71	23.50
(13)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	PUO ..	8.34	17.97	16.70	18.58
(14)	<i>All other diseases</i> ..	15.30	6.42	14.61	33.33
(15)	<i>All diseases</i> ..	755.22	989.72	965.20	1,165.03
(16)	<i>Accidents, Poisonings and violence</i>				
	General injuries ..	13.91	8.99	9.05	15.30
	Local injuries ..	55.63	51.35	34.79	51.37
	Injuries in action ..	..	..	..	..
	Poisons ..	..	1.28	..	1.37
	Total ..	69.54	61.62	43.84	68.31
(17)	<i>All cases</i> ..	824.76	1,051.34	1,009.04	1,233.33

TABLE 23

Relative casualty rates MNS (BS) India Command.

Specialist groups	1942	1943	1944	1945
(1) Infective and parasitic diseases	25.80	25.37	30.07	26.50
(2) Neoplasms	0.34	0.24	0.69	0.53
(3) Allergic, endocrine system and metabolic	0.34	0.37	..	0.22
(4) Diseases of the blood and blood forming organs	1.69	1.10	0.76	0.97
(5) Mental, psychoneurotic and personality disorders	0.84	1.47	1.72	2.17
(6) Diseases of the nervous system and sense organs	6.58	5.74	8.48	8.20
(7) Diseases of the circulatory system	1.35	2.08	1.03	0.53
(8) Diseases of the respiratory system	14.50	21.37	11.86	9.66
(9) Diseases of the digestive system	23.78	18.44	20.48	23.22
(10) Diseases of the genito-urinary system	4.55	6.59	7.10	7.35
(11) Diseases of the skin and cellular tissue	7.25	6.23	7.10	8.99
(12) Diseases of the bones and organs of movement	1.69	2.93	3.24	1.91
(13) Symptoms, senility and ill-defined conditions	1.01	1.71	1.66	1.51
(14) All other diseases	1.85	0.61	1.45	2.70
(15) All diseases	91.57	94.14	95.66	94.46
(16) Accidents-poisonings and violence	8.43	5.86	4.34	5.54
(17) All cases	100.00	100.00	100.00	100.00

CHAPTER V

Persia and Iraq

At the time of the Rashid Ali rebellion in Iraq, in May 1941, few Indian troops were posted in this area but soon after they were steadily moved in and their numbers were increased. The rebellion was nipped in the bud, by June 1941, without much fighting, after which the main object of troops in Iraq was occupation and development of Basra as a base for the maintenance of at least three divisions, capable of expansion to serve at least six divisions. The immediate task was to establish, at all the main centres of Iraq, forces which could keep the country in peace and security while preparations could be made to meet the threat from the side of Syria and Persia. In addition, they had to guard the lines of communications, oil-wells and pipe-lines. They were, therefore, spread all over the country.

In Persia, Germans applied the technique used in Iraq for extending their influence in which large emphasis was placed on commercial penetration. Seeing the presence of German spies in Persia, United Kingdom and Union of Soviet Socialist Republics (USSR) requested the Shah to give practical evidence of his professed neutrality by removing from Persia those Germans who were engaged in political activity hostile to the Allies. He failed to do so, and the Allies were obliged to safeguard their interests by sending troops into the country. For a few unhappy hours their entrance was resisted and the fighting, in which Indians and the British took part, was widespread and complex, though not important operationally. The forces in Persia were divided into groups. The southern group which was concentrated around Basra was required to secure and keep the gigantic oil refinery at Abadan. Another group was operating around Khanaqin to the north-west. Russians were pressing from the north. After some fighting, a truce was signed on 28 August, 1941, with insignificant casualties among the British and Indian forces. After this the troops were required to form the frame-work of a battle of manoeuvre over the whole area. They were also instructed to develop such road, rail and river communications as were found necessary to ensure the maximum possible delivery of supplies to Russia.

From the foregoing summary account, it will be seen that the morbidity history of troops in Persia and Iraq will hardly show useful number of cases such as flow directly from hostilities because whatever fighting occurred was confined to the months of May and August 1941. The figures given in this chapter will instead show a record of supreme endurance of the troops, under near fighting conditions, in a climate and living conditions which were by no standards agreeable. It is said that in summer the shade temperatures in Iraq during the day would be as high as 128°F and in winter for days an end in Persia a lower limit of 6°F was not unusual. Added to these were the unhealthy and marshy river valleys of the Tigris and the Euphrates.

Data of this chapter has been compiled from the monthly return, AFA 31-A which was submitted by O. C. hospitals, etc., to the

DMS/DDMS of a Force with copies to the ADMS concerned. A consolidated return for the whole Force was then sent by the DMS/DDMS of the Force to the DMS/(I). Period covered is from 1941 to 1945. Figures of 1945 are based on AFA 31-B as AFA 31-A had by then been abolished. Strength figures, as elsewhere, are the respective monthly averages and are not those of the A.G. (Statistics).

Section I

VICEROY'S COMMISSIONED OFFICERS AND INDIAN OTHER RANKS

In Table 1 are given rates of absolute incidence from various causes, grouped according to the international classification. It will be seen at the outset that the overall morbidity rates were generally of a lower order in Persia and Iraq as against those elsewhere, except in 1941. Also that war wounds never exceeded a rate of about 1 per 1,000, except again in 1941.

Diseases with high incidence rates, each year, were malaria, venereal diseases, injuries (non-enemy action), minor septic diseases, common cold, dysentery and diarrhoea. It will be remembered that similar morbidity history was recorded in Burma and elsewhere, by the VCOs and IORs. Almost all of these diseases registered falling incidence from year to year. For instance, malaria rate fell down to one-fifth in 1945; dysentery to a third; venereal diseases and injuries to a half; and common cold and diarrhoea to a third each, from their rates in 1941.

It seems that diphtheria, hepatitis, sandfly fever, pharyngitis, cerebrospinal fever, mumps, oriental sore and heat effects assumed special importance, from the point of view of their incidence, in Persia and Iraq. These diseases also had high rates of incidence, similar was the case with respect to respiratory diseases.

A table is given below in which the relative importance of each of a selected group of diseases, each year, is shown.

*Admissions to Hospitals by causes in their descendent order of importance
VCOs and IORs—1941-45, Persia and Iraq.*

Diseases	1941 Rank	1942 Rank	1943 Rank	1944 Rank	1945 Rank
Malaria ..	(1)	(1)	(1)	(1)	(4)
Venereal diseases ..	(2)	(2)	(3)	(3)	(2)
Injuries ..	(3)	(3)	(2)	(2)	(1)
Minor septic diseases	(4)	(5)	(4)	(4)	(3)
Common cold ..	(5)	(6)	(5)	(6)	(7)
Dysentery ..	(6)	(8)	(8)	(5)	(6)
Sandfly fever ..	(7)	(9)	(9)	(7)	(5)
Diarrhoea ..	(8)	(7)	(7)	(8)	(9)
Hepatitis ..	(9)	(10)	(11)	(9)	(8)
Pharyngitis ..	(10)	(4)	(6)	..	..
Diphtheria ..	(11)	(13)	(13)	(12)	(12)
Tonsillitis ..	(12)	(11)	(10)	(10)	(10)
Battle injuries ..	(13)	(12)	(12)	(11)	(11)

As will be seen in this table and the table of relative rates (Table 2) no large scale shifting in their positions took place. The following exceptions may be noticed: malaria which was the single cause of largest admissions upto 1944, became fourth in 1945 when injuries occupied the first position. Minor septic diseases, dysentery, sandfly fever and hepatitis became more and more important by the passage of time

whereas the reverse argument applied to common cold, diarrhoea and pharyngitis.

Among the various diseases, the largest medical attention was drawn towards malaria. Special anti-malaria units were deployed here for the purpose of surveying the camping sites for troops. Its seasonal variation is available in the figures of monthly admissions given on page 355.

These figures are generally comparable within each year, except in 1941 when large variations took place in the strength of the troops. One thing is obvious from a study of these figures that, though malaria was said to be endemic throughout Persia and Iraq, it assumed specially significant proportional change during the months of May to November, each year. These months provided the height of the monthly variations. The higher incidence during winter months, November to January, might have been due to relapse cases or to delayed primary infections as a result of transmissions in the plains of Persia and Iraq earlier. Another important point worthy of notice is that a monthly rate of as high as 25 per 1,000 strength was reached in July 1943.

Seasonal variations for venereal diseases and dysentery can be had from Table 4 and 5 respectively. No definite trend is traceable in the figures for the former. It seems as if a month or two of high admissions are followed by another of low ones. In the case of dysentery, on the other hand, there seem to be two peak points touched its admissions each year, one in April to June and again in September to November. On the whole, both of them registered falling incidence from year to year.

A reference to the cases of heat effects in all the Middle East fronts seems necessary. In Persia and Iraq following number of cases were registered:—

	1941		1942		1943		1944		1945	
	Actual	Rate per 1000	Actual	Rate per 1000	Actual	Rate per 1000	Actual	Rate per 1000	Actual	Rate per 1000
Heat exhaustion ..	7	0.22	230	2.67	667	6.63	7	0.12	18	0.40
Heat stroke ..	306	9.45	19	0.22	4	0.04	..	..	..	..

The number of cases from these morbid conditions was alarming in 1943 and large during the previous two years. They were, however, brought down to a very manageable figures in 1944 and 1945. It may, however, be stated that in none of the three years of large admissions did the rate of incidence exceed 10 per 1,000 for the combined causes.

In Tables 6 and 7 are given monthly figures of admissions due to all causes and monthly average daily admissions in respect of VCOs and IORs. Besides providing the general seasonal trend these tables also indicate the nature of relationship between monthly admissions and average daily admissions. For instance, during January 1942, 5,720 admissions were recorded from amongst the VCOs and IORs whereas the daily average was 2,807 in the same month. The ratio of January

Seasonal variation in malaria admissions in Persia and Iraq—VCOs and IORs.

Year		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1941	Actual Admissions	..	..	..	NA	NA	607	630	501	484	872	750	727	4571
1942	Actual admissions	445	229	211	373	465	749	728	740	1104	1223	1149	744	8160
1943	Actual admissions	254	207	246	251	667	1721	2260	1568	1456	1166	923	553	11272
1944	Actual admissions	283	142	130	168	218	525	447	394	374	477	369	185	3712
1945	Actual admissions	22	65	40	62	133	219	182	158	159	153	83	85	1361

does not necessarily hold for other months. It most generally varies from month to month. These figures do indicate that a rising monthly admissions figures gave rise to a rising daily average also.

From Table 3 of relative casualty rates, it will be seen that infective and parasitic diseases were, each year responsible for about 40 per cent. of all hospital admissions. Of the other groups of diseases, given in this table respiratory diseases, digestive diseases and injuries were also good contributors.

TABLE 1

Admissions to Hospitals—Annual rates per 1,000 strength: VCOs and IORS: Persia and Iraq Force.

Diseases	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Cerebrospinal fever ..	1.42	1.14	0.18	0.03	0.07
Cholera ..	..	..	..	..	0.07
Dengue ..	0.89	0.01	0.02	0.07	0.26
Diphtheria ..	6.20	0.05	0.21	0.03	0.11
Dysentery ..	34.88	19.97	16.71	22.26	11.47
Enteric group of fever ..	5.09	0.19	0.29	0.28	0.20
Infective hepatitis (Jaundice) ..	11.55	9.17	2.56	8.00	7.73
Malaria ..	141.11	94.83	112.10	61.39	29.96
Major septic diseases ..	..	..	..	..	0.92
Minor septic diseases ..	41.34	30.74	40.58	30.81	33.06
Mumps ..	3.18	2.20	7.39	3.13	1.50
Oriental sore ..	1.73	1.66	0.36	0.50	0.77
Plague ..	0.06	..	..	..	0.02
Poliomyelitis ..	..	..	0.01	0.02	..
Sandfly fever ..	28.00	14.31	16.52	15.81	18.86
Scabies ..	7.66	5.18	4.47	4.61	3.28
Smallpox ..	0.28	0.71	0.78	0.56	0.04
Tuberculosis ..	2.28	2.24	2.39	2.98	1.63
Trachoma ..	1.64	2.79	3.05	2.07	0.88
Typhus fever ..	0.74	0.05	0.70	0.02	..
Venereal diseases ..	65.48	56.91	44.01	38.32	37.57
Total ..	353.54	242.14	252.30	190.90	148.39
(2) <i>Diseases of the Blood and Blood forming organs</i>					
Nutritional and other anaemia ..	..	..	..	..	2.13
(3) <i>Mental, Psychoneurotic and Personality disorders</i>					
Mental diseases ..	3.89	3.83	3.35	4.02	2.77
(4) <i>Diseases of the Nervous system and sense organs</i>					
ENT diseases ..	..	..	..	2.91	5.70

TABLE 1—(Contd.)

Diseases		1941*	1942	1943	1944	1945
	Eye diseases other than trachoma	3.77	14.21	14.32	9.48	7.75
	Total	3.77	14.21	14.32	12.39	13.45
(5)	<i>Diseases of the Circulatory system</i>					
	Rheumatic fever	5.77	0.35	0.31	..	0.13
	Other circulatory diseases .. ..	..	..	..	1.02	1.14
	Total	5.77	0.35	0.31	1.02	1.28
(6)	<i>Diseases of the Respiratory system</i>					
	Common cold	35.56	30.13	27.67	17.42	10.26
	Tonsillitis	5.56	7.43	9.66	6.83	3.61
	Pharyngitis	10.96	35.93	21.81	..	..
	Influenza	5.12	0.17	0.13	0.58	1.83
	Pneumonia .. ..	..	..	..	..	2.20
	Other respiratory diseases .. ..	..	..	..	3.27	9.64
	Total	57.20	73.66	59.27	28.10	27.54
(7)	<i>Diseases of the Digestive system</i>					
	Diarrhoea	21.18	21.12	19.01	10.06	6.18
	Other digestive diseases	29.08	42.26	54.42	44.62	34.40
	Total	50.26	63.37	73.43	54.68	40.59
(8)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases .. ..	..	..	..	3.44	7.11
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>					
	NYD fever .. ..	..	..	..	12.34	9.86
	PUO	4.20	1.12	5.80	8.68	4.49
	Total	4.20	1.12	5.80	21.02	14.35
(10)	<i>All other diseases</i>	264.82	203.56	176.09	135.03	83.64
(11)	<i>All diseases</i>	743.43	602.26	584.88	450.60	341.26
(12)	<i>Accidents, Poisoning and violence (Non-battle injuries)</i>					
	Burns and scalds .. ..	..	..	..	..	1.96
	Other local injuries	60.14	47.85	49.78	46.29	37.46
	Total	60.14	47.85	49.78	46.29	39.42
(13)	<i>Accidents, Poisoning and violence (battle injuries)</i>					
	Injuries caused by blast .. ..	..	..	..	..	0.09
	Bomb wounds .. ..	..	0.03	..	..	..
	Gunshot wounds	5.03	0.74	1.21	1.02	0.92
	Shell wounds	0.56	0.02	0.07	..	..
	Total	5.59	0.80	1.28	1.02	1.01
(14)	<i>All cases</i>	809.16	650.91	635.95	497.92	381.49
(15)	<i>Average daily sick</i>	25.30	30.65	29.95	26.98	17.60
(16)	<i>Deaths</i>	2.87	3.15	2.44	2.93	2.36

*1941 figures are only for ten months. Figures for April and May are not available.

TABLE 2

Relative morbidity rates: VCOs and IORs: Persia and Iraq Force.

Diseases	1941*	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Cerebrospinal fever ..	0.19	0.19	0.03	0.01	0.02
Cholera .. ..	..	..	..	..	0.02
Dengue	0.12	0.00	0.00	0.01	0.08
Diphtheria	0.83	0.01	0.03	0.01	0.03
Dysentery	4.69	3.31	2.81	4.74	3.36
Enteric group of fevers ..	0.68	0.03	0.05	0.06	0.06
Infective hepatitis (Jaundice) ..	1.55	1.52	0.43	1.70	2.26
Malaria	18.98	15.75	18.84	13.08	8.78
Major septic diseases ..	..	..	..	..	0.27
Minor septic diseases ..	5.56	5.10	6.82	6.56	9.69
Mumps	0.43	0.36	1.24	0.67	0.44
Oriental sore	0.23	0.28	0.06	0.11	0.23
Plague	0.01	..	..	..	0.01
Poliomyelitis .. ..	..	..	0.00	0.00	..
Sandfly fever	3.77	2.37	2.78	3.37	5.53
Scabies	1.03	0.86	0.75	0.98	0.96
Smallpox	0.04	0.12	0.13	0.12	0.01
Tuberculosis	0.31	0.37	0.40	0.63	0.48
Trachoma	0.22	0.46	0.51	0.44	0.26
Typhus fever	0.10	0.01	0.12	0.00	..
Veneral diseases	8.81	9.45	7.40	8.16	11.01
Total	47.56	40.21	42.41	40.67	43.48
(2) <i>Diseases of the Blood and Blood forming organs</i>					
Nutritional and other Anaemia .. ..	..	..	..	..	0.63
(3) <i>Mental, Psychoneurotic and Personality disorders</i>					
Mental diseases	0.52	0.64	0.56	0.86	0.81
(4) <i>Diseases of the Nervous system and sense organs</i>					
ENT diseases .. ..	..	..	..	0.62	1.67
Eye diseases other than trachoma	0.51	2.36	2.41	2.02	2.27
Total	0.51	2.36	2.41	2.64	3.94
(5) <i>Diseases of the Circulatory system</i>					
Rheumatic fever	0.78	0.06	0.05	..	0.04
Other circulatory diseases .. ..	..	..	..	0.22	0.34
Total	0.78	0.06	0.05	0.22	0.37
(6) <i>Diseases of the Respiratory system</i>					
Common cold	4.78	5.00	4.65	3.71	3.01
Tonsillitis	0.75	1.23	1.62	1.45	1.06
Pharyngitis	1.47	5.97	3.67	..	..

TABLE 2—(Contd.)

Diseases		1941*	1942	1943	1944	1945
	Influenza	0.69	0.03	0.02	0.12	0.53
	Pneumonia .. ..	..	..	..	..	0.64
	Other Respiratory diseases .. ..	..	..	..	0.70	2.82
	Total	7.69	12.23	9.96	5.99	8.07
(7)	<i>Diseases of the Digestive system</i>					
	Diarrhoea	2.85	3.51	3.20	2.14	1.81
	Other digestive diseases	3.91	7.02	9.15	9.51	10.08
	Total	6.76	10.52	12.34	11.65	11.89
(8)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases .. ..	..	..	..	0.73	2.08
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>					
	NYD fever .. ..	..	..	..	2.63	2.89
	PUO	0.56	0.18	0.97	1.85	1.32
	Total	0.56	0.18	0.97	4.48	4.21
(10)	<i>All other diseases</i>	35.62	33.80	29.60	28.76	24.51
(11)	<i>All diseases</i>	100.00	100.00	100.00	100.00	100.00

*1941 figures are only for 10 months. Figures for April and May are not available.

TABLE 3

Relative casualty rates: VCOs and IORs: Persia and Iraq Force.

Specialist Groups		1941	1942	1943	1944	1945
(1)	Infective and parasitic diseases	43.69	37.20	39.67	38.35	40.85
(2)	Diseases of the blood and blood forming organs .. ..	..	..	..	..	0.56
(3)	Mental, psychoneurotic and personality disorders	0.48	0.59	0.53	0.81	0.73
(4)	Diseases of the nervous system and sense organs	0.46	2.18	2.25	2.49	3.52
(5)	Diseases of the circulatory system	0.71	0.05	0.05	0.21	0.33
(6)	Diseases of the respiratory system	7.07	11.32	9.32	5.64	7.21
(7)	Diseases of the digestive system	6.21	9.74	11.55	10.98	10.63
(8)	Diseases of the skin and cellular tissue .. ..	..	..	..	0.69	1.86
(9)	Symptoms, senility and ill-defined conditions	0.52	0.17	0.91	4.22	3.76
(10)	All other diseases	32.72	31.28	27.69	27.11	21.91
(11)	All diseases	91.88	92.53	91.97	90.49	89.41
(12)	Non-battle injuries	7.43	7.35	7.83	9.30	10.33
(13)	Battle injuries	0.69	0.12	0.20	0.21	0.26
(14)	All cases	100.00	100.00	100.00	100.00	100.00

TABLE 4
Seasonal variation in Venereal Diseases—VCOs and IORs.

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	1	..	..	NA	NA	163	34	282	94	452	679	416	2121
(2) 1942	362	209	317	289	374	411	414	473	546	497	509	496	4897
(3) 1943	432	312	368	335	465	414	431	431	416	290	265	266	4425
(4) 1944	233	176	228	180	213	174	192	236	207	178	179	121	2317
(5) 1945	138	107	124	148	141	161	185	150	188	155	92	118	1707

TABLE 5
Seasonal variation in Dysentery—VCOs and IORs.

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	..	..	..	NA	NA	215	31	259	89	223	203	110	1130
(2) 1942	55	33	60	153	167	153	107	120	182	302	243	143	1718
(3) 1943	75	39	30	73	240	152	138	173	256	224	167	113	1680
(4) 1944	48	25	51	142	177	155	89	136	133	172	129	89	1346
(5) 1945	33	17	16	44	92	52	38	40	57	55	51	26	521

TABLE 6

Admissions all causes: VCOs and IORs.

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	Actual admissions	1	3	NA	NA	2680	3640	4370	2226	3984	5012	4295	26211
(2) 1942	Actual admissions	5720	3421	3268	3610	4984	4847	4585	4985	5825	5624	4536	56008
(3) 1943	Actual admissions	5011	5137	5497	4913	6395	6988	6037	5572	4902	3768	3537	63946
(4) 1944	Actual admissions	2932	2602	2310	2531	2839	2623	2682	2374	2641	2129	1687	30105
(5) 1945	Actual admissions	1611	1516	1369	1373	1789	1738	1578	1528	1382	904	905	17341

TABLE 7

Average daily sick (all causes): VCOs and IORs.

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	Actual admissions	0·16	1·89	1·06	NA	804·67	173·23	449·65	833·78	1525·06	2151·89	2254·94	819·63
(2) 1942	Actual admissions	2806·99	2502·62	2217·19	2383·77	2543·15	2928·51	2253·85	2172·95	2974·64	3074·53	3149·08	2637·62
(3) 1943	Actual admissions	3265·66	3334·82	3309·64	3016·15	2887·77	3489·88	3183·62	3046·31	2642·29	2975·59	2328·77	3011·77
(4) 1944	Actual admissions	2131·49	1861·41	1678·58	1772·74	1663·67	1637·41	1629·99	1467·39	1488·33	1377·36	1188·64	1631·09
(5) 1945	Actual admissions	1140·71	1062·19	981·07	867·32	907·89	913·72	258·20	701·36	676·95	573·00	600·99	799·73

Section II

NON-COMBATANTS (ENROLLED)

Annual rates of incidence from all causes were consistently lower for the NCs(E) than that of the VCOs and IORs (see Tables 3 and 13). It is remarkable that a similar difference was observed in most of the individual causes also. A comparison between them is provided by figures given in the following table:—

		1941		1942		1943		1944		1945	
		NCs (E)	VCOs and IORs	NCs (E)	VCOs and IORs	NCs (E)	VCOs and IORs	NCs (E)	VCOs and IORs	NCs (E)	VCOs and IORs
All diseases	..	528	743	487	602	468	585	279	451	263	341
All causes	..	560	809	515	651	502	636	303	498	282	381

It will be seen from these figures that the NCs(E)'s rate never exceeded a level greater than 80 per cent. of the corresponding VCOs and IORs' rate.

Among the important specific causes, about the same order applies as that applicable to the VCOs and IORs as will be observed in the table appended below:—

		1941 (Rank)	1942 (Rank)	1943 (Rank)	1944 (Rank)	1945 (Rank)
Venereal diseases	..	(1)	(2)	(2)	(1)	(1)
Malaria	..	(2)	(1)	(1)	(2)	(4)
Common cold	..	(3)	(6)	(5)	(6)	(7)
Minor septic diseases	..	(4)	(5)	(4)	(4)	(2)
Injuries (NEA)	..	(5)	(4)	(3)	(3)	(3)
Sandfly fever	..	(6)	(9)	(9)	(7)	(5)
Dysentery	..	(7)	(8)	(8)	(5)	(6)
Diarrhoea	..	(8)	(7)	(7)	(8)	(8)
Pharyngitis	..	(9)	(3)	(6)	(9)	..

It must be remarked here that the incidence rate from individual causes kept on falling over the period under consideration. The table given above shows their relative position only, each year. In this, the declining importance of malaria, common cold and sandfly fever from year to year and the increasing importance of venereal diseases, minor septic diseases, injuries (NEA), pharyngitis and dysentery may be observed.

Monthly admissions due to malaria, venereal diseases and dysentery are given in tables 16, 17 and 18 respectively.

Malaria figures show a steeply falling regression over the whole period but in each year the latter half (from June) seems to be indicative of particularly high incidence.

A similar tendency applies to dysentery admissions but those from venereal diseases do not lend themselves to any specific trend.

Incidence of heat effects rose from 4.97 per 1,000 in 1941 to 6.12 per 1,000 in 1943. Their distribution is given in the undermentioned table:—

Incidence of Heat Effects among NCs(E).

	1941		1942		1943		1944		1945	
	Actual	Rate per 1,000	Actual	Rate per 1,000	Actual	Rate per 1,000	Actual	Rate per 1,000	Actual	Rate per 1,000
Heat exhaustion ..	11	0.96	77	2.30	226	6.12	..	..	5	0.34
Heat stroke ..	46	4.01	..	..	..	..	..	..	..	..
Total ..	57	4.97	77	2.30	226	6.12	..	..	5	0.34

Figures of monthly admissions from all causes and those for daily sick, each month, are given in Tables 19 and 20 respectively. It is interesting to follow increase in one being followed by an increase in the other, though the extent is not the same.

From a study of the relative casualty rates in Table 15, it will be seen that infective and parasitic diseases were responsible each year for at least 38 per cent. of all hospital admissions, among the NCs(E). As in the case of the VCOs and IORs, the other important groups of diseases were respiratory diseases, digestive diseases and injuries (NEA).

It may be stated on the whole that the state of health of NCs(E) in Persia and Iraq remained very much better than that of the VCOs and IORs. The difference observed above, from major causes of incidence, also applies to smaller ones also. For instance very much fewer cases and lower incidence rates, were registered by the NCs(E) from heat stroke, heat exhaustion, sandfly fever, oriental sore and diphtheria.

TABLE 8

Admissions to Hospitals—Annual rates per 1,000 strength: NCs(E): Persia and Iraq Force.

Diseases	1941*	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Cerebrospinal fever ..	1.57	0.81	0.16	0.08	0.14
Cholera ..	..	..	..	..	0.07
Dengue ..	0.17	0.03	..	..	0.20
Diphtheria ..	2.96	0.03	0.27	..	0.14
Dysentery ..	13.86	14.69	11.38	14.01	8.34
Enteric group of fevers ..	0.96	0.12	0.22	0.08	0.27
Infective hepatitis (Jaundice) ..	5.40	5.24	1.92	5.64	4.24

TABLE 8—(Contd.)

Diseases		1941*	1942	1943	1944	1945
	Malaria ..	51.87	73.01	73.52	26.22	15.80
	Major septic diseases ..	..	..	..	..	0.55
	Minor septic diseases ..	32.95	25.76	32.75	15.55	22.23
	Mumps ..	2.27	2.30	4.63	1.59	1.30
	Oriental sore ..	1.13	0.69	0.16	0.33	1.09
	Poliomyelitis ..	0.26	..	..	..	..
	Sandfly fever ..	14.73	8.62	9.78	8.57	15.05
	Scabies ..	4.53	2.81	4.17	3.05	1.71
	Smallpox ..	0.61	1.41	0.38	0.38	..
	Tuberculosis ..	1.39	1.26	1.65	1.50	0.82
	Trachoma ..	1.57	2.66	3.03	1.55	0.48
	Typhus fever ..	0.96	0.12	0.46	..	..
	Venereal diseases ..	87.44	68.61	47.68	37.47	46.10
	Total ..	224.68	208.17	192.18	116.04	118.53
(2)	<i>Diseases of the blood and Blood forming organs</i>					
	Nutritional and other anaemia ..	..	..	..	..	1.03
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>					
	Mental diseases ..	1.83	4.01	3.58	2.26	1.64
(4)	<i>Diseases of the Nervous system and sense organs</i>					
	ENT diseases ..	..	..	..	1.63	3.69
	Eye diseases other than trachoma ..	2.00	10.71	12.46	6.82	5.13
	Total ..	2.00	10.71	12.46	8.45	8.82
(5)	<i>Diseases of the Circulatory system</i>					
	Rheumatic fever ..	1.39	0.12	0.08	0.04	0.07
	Other circulatory diseases ..	..	..	..	0.17	0.14
	Total ..	1.39	0.12	0.08	0.21	0.20
(6)	<i>Diseases of the Respiratory system</i>					
	Common cold ..	47.25	25.31	22.24	11.41	8.21
	Tonsillitis ..	4.10	4.40	4.98	2.97	1.85
	Pharyngitis ..	6.89	28.10	16.71	1.76	..
	Influenza ..	2.70	0.18	0.19	0.17	0.34
	Pneumonia ..	..	..	..	..	1.71
	Other respiratory diseases ..	..	..	..	..	7.39
	Total ..	60.94	57.98	44.13	16.30	19.49
(7)	<i>Diseases of the Digestive system</i>					
	Diarrhoea ..	11.86	15.29	13.03	6.82	6.15
	Other digestive diseases ..	24.85	29.53	44.89	25.34	24.35
	Total ..	36.70	44.82	57.92	32.16	30.50
(8)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases ..	..	..	..	2.13	4.72

TABLE 8—(Contd.)

Diseases		1941*	1942	1943	1944	1945
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>					
	NYD fever ..	..	..	..	8.32	7.52
	PUO ..	3.57	0.63	2.84	4.10	4.03
	Total ..	3.57	0.63	2.84	12.42	11.55
(10)	<i>All other diseases</i> ..	196.60	160.44	154.71	88.69	66.00
(11)	<i>All diseases</i> ..	527.72	486.89	467.91	278.65	262.50
(12)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>					
	Burns and Scalds ..	..	..	..	..	2.12
	Other local injuries ..	31.73	27.92	33.89	24.25	17.23
	Total ..	31.73	27.92	33.89	24.25	19.36
(13)	<i>Accidents, Poisoning and violence (battle injuries)</i>					
	Gunshot wounds ..	0.09	0.27	0.16	..	0.14
	Shell wounds ..	0.26	..	..	..	..
	Total ..	0.35	0.27	0.16	..	0.14
(14)	<i>All cases</i> ..	559.81	515.08	501.96	302.91	281.99
(15)	<i>Average daily sick</i> ..	19.47	24.57	24.58	17.77	16.42
(16)	<i>Deaths</i> ..	1.66	2.39	2.06	1.38	1.57

*1941 figures are only for ten months. Figures for April and May are not available.

TABLE 9

Relative morbidity rates: NCs(E): Persia and Iraq Force.

Diseases		1941	1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>					
	Cerebrospinal fever ..	0.30	0.17	0.03	0.03	0.05
	Cholera ..	..	..	..	..	0.03
	Dengue ..	0.03	0.01	..	..	0.08
	Diphtheria ..	0.56	0.01	0.06	..	0.05
	Dysentery ..	2.63	3.02	2.43	5.03	3.18
	Enteric group of fevers	0.18	0.02	0.05	0.03	0.10
	Infective hepatitis (jaundice) ..	1.02	1.07	0.41	2.03	1.61
	Malaria ..	9.83	14.99	15.71	9.41	6.02
	Major septic diseases ..	..	..	..	..	0.21
	Minor septic diseases ..	6.24	5.29	7.00	5.58	8.47
	Mumps ..	0.43	0.47	0.99	0.57	0.49
	Oriental sore ..	0.21	0.14	0.03	0.12	0.42
	Poliomyelitis ..	0.05	..	..	..	..
	Sandfly fever ..	2.79	1.77	2.09	3.08	5.73
	Scabies ..	0.86	0.58	0.89	1.09	0.65
	Smallpox ..	0.12	0.29	0.08	0.13	..
	Tuberculosis ..	0.26	0.26	0.35	0.54	0.31

TABLE 9—(Contd.)

Diseases		1941	1942	1943	1944	1945
	Trachoma	0.30	0.55	0.65	0.55	0.18
	Typhus fever	0.18	0.02	0.10	..	..
	Venereal diseases	16.57	14.09	10.19	13.44	17.56
	Total	42.58	42.75	41.07	41.64	45.15
(2)	<i>Diseases of the Blood and Blood forming organs</i>					
	Nutritional and other anaemia .. ..	..	..	..	..	0.39
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>					
	Mental diseases	0.35	0.82	0.76	0.81	0.62
(4)	<i>Diseases of the Nervous system and sense organs</i>					
	ENT diseases .. ..	..	..	..	0.58	1.41
	Eye diseases other than trachoma	0.38	2.20	2.66	2.45	1.95
	Total	0.38	2.20	2.66	3.03	3.36
(5)	<i>Diseases of the Circulatory system</i>					
	Rheumatic fever ...	0.26	0.02	0.02	0.01	0.03
	Other circulatory diseases .. ..	..	..	..	0.06	0.05
	Total	0.26	0.02	0.02	0.07	0.08
(6)	<i>Diseases of the Respiratory system</i>					
	Common cold	8.95	5.20	4.75	4.10	3.13
	Tonsillitis	0.78	0.90	1.06	1.07	0.70
	Pharyngitis	1.30	5.77	3.57	0.63	..
	Influenza	0.51	0.04	0.04	0.06	0.13
	Pneumonia .. ..	..	..	..	..	0.65
	Other respiratory diseases .. ..	..	..	..	..	2.81
	Total	11.54	11.91	9.43	5.86	7.43
(7)	<i>Diseases of the Digestive system</i>					
	Diarrhoea	2.25	3.14	2.78	2.45	2.34
	Other digestive diseases	4.71	6.07	9.59	9.09	9.28
	Total	6.95	9.21	12.38	11.54	11.62
(8)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases .. ..	..	..	..	0.76	1.80
(9)	<i>Symptoms, Senility and Ill- defined conditions</i>					
	NYD fever .. ..	..	..	..	2.99	2.87
	PUO	0.68	0.13	0.61	1.47	1.54
	Total	0.68	0.13	0.61	4.46	4.41
(10)	<i>All other diseases</i>	37.25	32.95	33.07	31.83	25.14
(11)	<i>All diseases</i>	100.00	100.00	100.00	100.00	100.00

TABLE 10

Relative casualty rates: NCs(E): Persia and Iraq Force.

Specialist groups	1941	1942	1943	1944	1945
(1) Infective and parasitic diseases	40.13	40.41	38.29	38.31	42.03
(2) Diseases of the blood and blood forming organs ..	..	..	..	..	0.36
(3) Mental, psychoneurotic and personality disorders	0.33	0.78	0.71	0.74	0.58
(4) Diseases of the nervous system and sense organs	0.36	2.08	2.48	2.79	3.13
(5) Diseases of the circulatory system	0.25	0.02	0.02	0.07	0.07
(6) Diseases of the respiratory system	10.88	11.26	8.79	5.38	6.91
(7) Diseases of the digestive system	6.56	8.70	11.54	10.62	10.82
(8) Diseases of the skin and cellular tissue ..	..	..	..	0.70	1.67
(9) Symptoms, senility and ill-defined conditions ..	0.64	0.12	0.56	4.10	4.10
(10) All other diseases ..	35.12	31.16	30.83	29.28	23.40
(11) All diseases ..	94.27	94.53	93.22	91.99	93.09
(12) Non-battle injuries ..	5.67	5.42	6.75	8.01	6.86
(13) Battle injuries ..	0.06	0.05	0.03	..	0.05
(14) All cases ..	100.00	100.00	100.00	100.00	100.00

TABLE 11
Seasonal variation in Malaria—NCs(E).

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	..	..	..	..	NA	85	93	114	47	105	70	81	595
(2) 1942	68	43	38	72	94	219	199	202	569	391	279	266	2440
(3) 1943	168	93	55	42	109	554	471	311	319	280	188	124	2714
(4) 1944	41	20	18	26	34	97	101	76	69	76	40	29	627
(5) 1945	2	8	7	9	32	40	38	15	27	29	16	8	231

TABLE 12
Seasonal variation in Venereal Diseases: NCs(E).

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	..	..	..	..	..	90	3	103	82	132	409	184	1003
(2) 1942	207	135	153	159	198	196	199	222	224	210	175	215	2293
(3) 1943	169	172	142	149	204	174	170	64	149	153	107	107	1760
(4) 1944	87	66	78	80	82	71	67	87	91	76	59	52	896
(5) 1945	51	39	39	64	45	57	67	77	79	62	53	41	674

TABLE 13
Seasonal variation in Dysentery: NCs(E).

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	..	..	..	..	..	32	10		15	31	50	21	159
(2) 1942	16	7	11	34	57	43	27	48	56	79	72	41	491
(3) 1943	20	8	14	15	38	44	39	44	59	64	42	33	420
(4) 1944	10	7	25	25	41	42	20	27	38	40	42	18	335
(5) 1945	6	3	5	12	23	13	15	9	14	7	10	5	122

TABLE 14
Admissions all causes: NCs(E).

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	..	..	..	..	..	440	798	1107	560	694	1690	1132	6421
(2) 1942	1637	954	881	1078	1509	1590	1364	1577	1839	1830	1532	1423	17214
(3) 1943	1699	1705	1645	1380	1466	1878	1855	1642	1557	1647	1125	930	18529
(4) 1944	760	565	539	531	663	648	640	685	682	595	497	439	7244
(5) 1945	367	343	326	373	368	379	432	396	360	322	240	217	4123

TABLE 15
Average Daily Sick: all causes: NCs(E).

Year		Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	Actual admissions	Nil	Nil	Nil	NA	NA	226.72	76.26	280.69	330.06	392.30	346.10	581.16	223.33
(2) 1942	Actual admissions	780.25	703.90	631.38	671.80	788.95	895.78	889.34	795.04	858.60	999.82	847.37	990.88	821.09
(3) 1943	Actual admissions	901.80	1175.49	997.45	847.69	885.01	813.63	1055.84	982.32	841.71	898.29	836.41	650.88	907.21
(4) 1944	Actual admissions	582.20	435.27	385.01	337.57	409.19	439.40	437.31	498.54	418.69	400.73	399.97	354.91	424.90
(5) 1945	Actual admissions	290.82	271.47	251.81	289.18	278.08	265.24	259.70	273.69	248.24	214.74	175.58	63.31	240.15

Section III

INDIAN OFFICERS

The rates of absolute and relative incidence in respect of the Indian Officers are given in Tables 16 and 17. The overall admission rates per 1,000 were 473·93; 427·50; 325·96 and 200·61 from 1941 to 1944 respectively. It will be seen that the important causes of admissions each year were malaria, sandfly fever, dysentery, minor septic diseases, tonsillitis, pharyngitis and injuries (NEA). It has not been possible to show figures of Indian officers for 1945 in these tables, as the same were included with the figures of British officers (Indian services) in AFA 31-B.

TABLE 16

Admissions to Hospitals—Annual rates per 1,000 strength: Indian Officers: Persia and Iraq Force.

Diseases	1941*	1942	1943	1944
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	9·48	..	..	..
Diphtheria .. ..	..	..	1·84	..
Dysentery	52·13	12·50	7·37	9·12
Enteric group of fevers ..	..	..	..	1·52
Infective hepatitis (Jaundice) ..	..	..	1·84	3·04
Malaria	56·87	45·00	53·41	16·72
Minor septic diseases ..	18·96	12·50	16·57	1·52
Mumps .. ..	..	..	..	1·52
Sandfly fever	33·17	27·50	33·15	24·32
Scabies .. ..	..	..	1·84	3·04
Smallpox .. ..	..	..	1·84	..
Tuberculosis .. ..	..	2·50	..	1·52
Typhus fever .. ..	..	..	1·84	..
Venereal diseases ..	..	2·50	5·52	..
Total	170·61	102·50	125·23	62·31
(2) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	4·74	..	5·52	1·52
(3) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases .. ..	..	..	..	1·52
Eye diseases other than trachoma .. ..	..	7·50	3·68	3·04
Total .. ..	..	7·50	3·68	4·56

TABLE 16—(Contd.)

Diseases		1941*	1942	1943	1944
(4)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	9.48	10.00	1.84	4.56
	Tonsillitis ..	33.17	20.00	16.57	4.56
	Pharyngitis ..	4.74	17.50	14.73	..
	Influenza ..	4.74	..	..	1.52
	Total ..	52.13	47.50	33.15	10.64
(5)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	28.44	10.00	12.89	13.68
	Other digestive diseases ..	18.96	47.50	29.47	21.28
	Total ..	47.39	57.50	42.36	34.95
(6)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases ..	..	..	..	3.04
(7)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	PUO ..	..	..	1.84	1.52
	Total ..	..	..	1.84	1.52
(8)	<i>All other diseases</i> ..	175.35	180.00	92.08	56.23
(9)	<i>All diseases</i> ..	450.23	395.00	303.86	174.78
(10)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Other local injuries ..	23.70	30.00	22.10	24.32
	Total ..	23.70	30.00	22.10	24.32
(11)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Gunshot wounds ..	..	2.50	..	1.52
	Shell wounds ..	..	..	..	..
	Total ..	..	2.50	..	1.52
(12)	<i>All cases</i> ..	473.93	427.50	325.96	200.61
(13)	<i>Average daily sick</i> ..	13.60	13.05	12.50	10.15
(14)	<i>Deaths</i> ..	..	2.50	..	3.04

*1941 figures are only for ten months. Figures for April and May are not available.

TABLE 17

Relative morbidity rates: Indian Officers: Persia and Iraq Force.

Diseases	1941 *	1942	1943	1944
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	2.10	..	..	..
Diphtheria ..	..	..	0.61	..
Dysentery ..	11.58	3.16	2.42	5.22
Enteric group of fevers ..	..	..	..	0.87
Infective hepatitis (Jaundice) ..	..	..	0.61	1.74
Malaria ..	12.63	11.39	17.58	9.57
Minor septic diseases ..	4.21	3.16	5.45	0.87
Mumps ..	..	..	..	0.87
Sandfly fever ..	7.37	6.96	10.91	13.91
Scabies ..	..	..	0.61	1.74
Smallpox ..	..	..	0.61	..
Tuberculosis ..	..	0.63	..	0.87
Typhus fever ..	..	..	0.61	..
Venereal diseases ..	..	0.63	1.82	..
Total ..	37.90	25.95	41.21	35.65
(2) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	1.05	..	1.82	0.87
(3) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases ..	..	..	..	0.87
Eye diseases other than trachoma ..	..	1.90	1.21	1.74
Total ..	..	1.90	1.21	2.61
(4) <i>Diseases of the Respiratory system</i>				
Common cold ..	2.10	2.53	0.61	2.61
Tonsillitis ..	7.37	5.06	5.45	2.61
Pharyngitis ..	1.05	4.43	4.85	..
Influenza ..	1.05	..	..	0.87
Total ..	11.57	12.02	10.91	6.09
(5) <i>Diseases of the Digestive system</i>				
Diarrhoea ..	6.32	2.53	4.24	7.83
Other digestive diseases ..	4.21	12.02	9.70	12.17
Total ..	10.53	14.56	13.94	20.00
(6) <i>Diseases of the Skin and Cellular tissues</i>				
Skin diseases ..	..	..	..	1.74
(7) <i>Symptoms, Senility and Ill-defined conditions</i>				
P.U.O ..	..	..	0.61	0.87
Total ..	..	..	0.61	0.87
(8) <i>All other diseases</i> ..	38.94	45.57	30.30	32.17
(9) <i>All diseases</i> ..	100.00	100.00	100.00	100.00

*1941 figures are only for ten months. Figures for April and May are not available.

TABLE 18

Relative Casualty Rates: Indian Officers: Persia and Iraq Force.

Specialist Groups	1941	1942	1943	1944
(1) Infective and parasitic diseases	36.00	23.98	38.42	31.06
(2) Mental, psychoneurotic and personality disorders	1.00	..	1.69	0.76
(3) Diseases of the nervous system and sense organs ..	..	1.75	1.13	2.27
(4) Diseases of the respiratory system	11.00	11.11	10.16	5.30
(5) Diseases of the digestive system	10.00	13.45	12.99	17.42
(6) Diseases of the skin and cellular tissue ..	..	..	..	1.51
(7) Symptoms, senility and ill-defined conditions ..	..	..	0.56	0.76
(8) All other diseases ..	37.00	42.10	28.25	28.03
(9) All diseases ..	95.00	92.40	93.22	87.12
(10) Non-battle injuries ..	5.00	7.02	6.78	12.12
(11) Battle injuries ..	..	0.58	..	0.76
(12) All cases	100.00	100.00	100.00	100.00

Section IV

INDIAN MILITARY NURSING SERVICES

The average number of Indian military nurses never exceeded one hundred and twentyfive in Persia and Iraq. Cases admitted to hospitals were few, viz., 23 in 1941; 58 in 1942; 61 in 1943; 23 in 1944 and 17 in 1945. Their absolute and relative rates are given in Tables 19 and 20. The overall incidence rate showed a steeply declining trend. It reduced from 1095·24 per 1,000 in 1941 to 447·37 in 1945.

TABLE 19

*Admissions to Hospitals—Annual rates per 1,000 strength: IMNS:
Persia and Iraq Force.*

Diseases		1941*	1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>					
	Cerebrospinal fever ..	..	..	..	18·87	..
	Diphtheria ..	95·24	..	8·40	..	..
	Dysentery ..	47·62	96·67	58·82	37·74	26·32
	Infective hepatitis (jaundice) ..	..	26·67	..	..	..
	Malaria ..	47·62	40·00	16·81	37·74	105·26
	Minor septic diseases ..	..	40·00	50·42	..	26·32
	Sandfly fever ..	190·48	40·00	33·61	56·60	52·63
	Scabies ..	..	..	8·40	..	..
	Smallpox ..	..	..	..	18·87	..
	Tuberculosis ..	..	..	..	..	26·32
	Trachoma ..	..	..	8·40	..	..
	Total ..	380·95	213·34	184·87	169·81	236·84
(2)	<i>Mental, Psychoneurotic and Personality disorders</i>					
	Mental diseases ..	47·62	..	..	..	..
(3)	<i>Diseases of the Respiratory system</i>					
	Common cold ..	95·24	13·33	16·81	..	..
	Tonsillitis ..	47·62	13·33	25·21	18·87	26·32
	Pharyngitis ..	47·62	26·67	84·03	..	..
	Influenza ..	..	13·33	..	..	..
	Total ..	190·48	66·66	126·05	18·87	26·32
(4)	<i>Diseases of the Digestive system</i>					
	Diarrhoea ..	..	40·00	25·21	..	..
	Other digestive diseases ..	..	66·67	58·82	..	..
	Total ..	..	106·67	84·03	..	26·32
(5)	<i>Symptoms, Senility and Ill-defined conditions</i>					
	NYD fever ..	..	..	..	18·87	..
	PUO ..	..	..	..	37·74	..
	Total ..	..	..	..	56·60	..
(6)	<i>All other diseases</i> ..	380·95	360·00	109·25	169·81	157·89

TABLE 19—(Contd.)

Diseases	*1941	1942	1943	1944	1945
(7) <i>All diseases</i>	1000.00	746.66	504.20	415.09	447.37
(8) <i>Accidents, Poisoning and violence (non-battle injuries)</i>					
Other local injuries ..	95.24	26.67	8.40	18.87	..
Total	95.24	26.67	8.40	18.87	..
(9) <i>All cases</i>	1095.24	773.33	512.61	433.96	447.37
(10) <i>Average daily sick</i> ..	18.09	24.93	19.66	24.72	20.00

*1941 figures are only for ten months. Figures for April and May are not available.

TABLE 20

Relative morbidity rates: IMNS: Persia and Iraq Force.

Diseases	1941*	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Cerebrospinal fever ..	..	..	..	4.54	..
Diphtheria	9.52	..	1.67	..	..
Dysentery	4.76	8.93	11.67	9.09	5.88
Infective hepatitis (Jaundice) ..	..	3.57	..	..	..
Malaria	4.76	5.36	3.33	9.09	23.53
Minor septic diseases ..	..	5.36	10.00	..	5.88
Sandfly fever	19.05	5.36	6.67	13.64	11.76
Scabies .. ..	..	..	1.67	..	..
Smallpox .. ..	..	..	..	4.54	..
Tuberculosis .. ..	..	..	..	..	5.88
Trachoma .. ..	..	..	1.67	..	..
Total	38.09	28.58	36.68	40.91	52.94
(2) <i>Mental, Psychoneurotic and Personality disorders</i>					
Mental diseases ..	4.76	..	..	..	..
(3) <i>Diseases of the Respiratory system</i>					
Common cold	9.52	1.79	3.33	..	..
Tonsillitis	4.76	1.79	5.00	4.54	5.88
Pharyngitis	4.76	3.57	16.67	..	..
Influenza .. ..	..	1.79	..	..	..
Total	19.04	8.93	25.00	4.54	5.88
(4) <i>Diseases of the Digestive system</i>					
Diarrhoea .. ..	..	5.36	5.00	..	..
Other digestive diseases ..	..	8.93	11.67	..	5.88
Total .. ..	..	14.29	16.67	..	5.88
(5) <i>Symptoms, Senility and Ill-defined conditions</i>					
NYD fever .. ..	..	..	..	4.54	..
PUO .. ..	..	..	..	9.09	..
Total .. ..	..	..	..	13.64	..
(6) <i>All other diseases</i>	38.09	48.22	21.66	40.91	35.29
(7) <i>All diseases</i>	100.00	100.00	100.00	100.00	100.00

*1941 figures are only for ten months. Figures for April and May are not available.

Section V

INDIAN TROOPS, ALL CATEGORIES

Figures of annual absolute incidence, relative rates and relative casualty rates are given in Tables 21, 22 and 23 respectively. It will be seen from Table 21 that the overall morbidity among Indian troops was of the order of 743 per 1,000 in 1941; 612 in 1942; 599 in 1943; 441 in 1944 and 357 in 1945. Of these war wounds accounted for a rate of four per 1,000 in 1941 after which it was less than one per 1,000. All the rest of the sickness was either due to sickness or to non-battle injuries (non-enemy action). The respective share of each of the latter and of the groups of diseases are given in Table 23. War wounds were never responsible for even 1 per cent. of all admissions. In 1941 when some enemy activity was met with in Persia and Iraq, their share of the total admissions was 0.6 per cent. From the figures given above, it will be seen that the overall incidence of the Indian troops fell down to less than half in 1945 from what it was in 1941. Similar was the case with the incidence rates for diseases also.

Causes which produced high incidence rates, each year, among Indian troops were: malaria, minor septic diseases, dysentery, injuries (non-enemy action), venereal diseases, sandfly fever, pharyngitis, diarrhoea and common cold. Heat effects were also important contributors to total sickness, particularly during 1941 and 1943. Their relative ranking, each year, (see also Table 22) is given below:—

Diseases	1941 (Rank)	1942 (Rank)	1943 (Rank)	1944 (Rank)	1945 (Rank)
Malaria	(1)	(1)	(1)	(1)	(4)
Venereal diseases ..	(2)	(2)	(3)	(3)	(1)
Injuries (NEA) ..	(3)	(3)	(2)	(2)	(2)
Minor septic diseases ..	(4)	(5)	(4)	(4)	(3)
Common cold	(5)	(6)	(5)	(6)	(7)
Dysentery	(6)	(8)	(8)	(5)	(6)
Sandfly fever	(7)	(9)	(9)	(7)	(5)
Diarrhoea	(8)	(7)	(7)	(8)	(8)
Pharyngitis	(9)	(4)	(6)	(9)	

On a comparison, it will be found that this table follows closely the one cast out for the VCOs and IORs. Except for the first four causes shown in it, the jump up taken by pharyngitis in 1942 and 1943 seems spectacular. Among the rest of the causes, the falling importance of common cold and dysentery may be noted and the rising importance of sandfly fever. Malaria seems to have descended downward with some steep trend. This is confirmed by its absolute rate of incidence also, which fell down to about 23 per cent. in 1945 of what it was in 1941. Taken individually, incidence from other causes also fell down, over the period under consideration, by varying degrees.

It seems necessary to devote some attention to the cases of admissions from some causes which appear to have been particularly prevalent in

Persia and Iraq. One of them was sandfly fever. In some months, admissions from this fever were the most common. It was reported to be endemic in Baghdad and Tehran and whichever troops happened to be in these areas suffered from it at high morbidity rates. Since it is not possible to disentangle reliable figures of those troops that were exposed to the risk of sandfly fever from the totals given here, its ferocity will remain indeterminate also. It produced annual rates of 25 per 1,000 in 1941; 13 in 1942; 15 in 1943; 14 in 1944 and 18 in 1945. These figures indicate a fall of about 28 per cent. to the end of the period under consideration. The number of admissions from it were 1,087 in the ten months of 1941; 1,533 in 1942; 2,044 in 1943; 1,180 in 1944 and 1,079 in 1945. Perhaps the fall in its incidence was due to the sandfly nets brought into use in 1941 and spraying.

Diphtheria outbreak seems to have occurred among Indian troops in 1941 when its incidence rate was 5.4 per 1,000. In none of the later years did it exceed 0.3 per 1,000.

Cerebrospinal fever carriers were present all over this area and cases occurred here and there. On the whole, it produced incidence rates of 1.5 per 1,000 in 1941 and 1 per 1,000 in 1942 after which the rate remained below 0.2 per 1,000. It was perhaps the use of sulphonamide and easier accommodation which brought about this fall. Its admissions increased with the onset of winter and crowded tents but decreased at the approach of the warm weather.

There occurred a few hundred cases of hepatitis, each year, among the Indian troops. Its cause remained obscure but it was thought at that time that chills might have contributed to its spread. Its incidence rate fluctuated, without a uniform trend, between two and ten per 1,000 over the period.

The highest number of typhus cases reported among the Indian troops was 88 in 1943 with a rate of 0.6 per 1,000. This disease seems to have been kept under check by regular disinfection and cleansing of troops and coolies. The latter were provided lethane belts in controlled camps to avoid the infection of this disease spreading to the troops.

Cases of heat effects among Indian troops are given below:—

	1941		1942		1943		1944		1945	
	Ad.	Rate	A	R	A	R	A	R	A	R
Heat exhaustion	19	0.4	313	2.6	895	6.5	7	0.1	23	0.4
Heat stroke	352	8.0	19	0.2	4	0.0	..	..	..	..

The spread of these cases was said to be largely due to long and exhausting fatigues on the wharves, irregular meals and lack of supervision over drinking water supplies. Action to remove these conditions seem to have been taken after 1943.

The fall in the incidence of all causes, as has been noted above, does not seem to have been followed in that manner by figures of average number daily sick over the period. There were 24 persons daily sick, out of every 1,000, in 1941; 29 in 1942; 28 in 1943; 24 in 1944 and 17 in 1945. The increase in 1942 and 1943 seems to be peculiar.

TABLE 21

Admissions to Hospitals—Annual rates per 1,000 strength: Indian Troops (all types): Persia and Iraq Force.

Diseases	1941*	1942	1943	1944	1945†
(1) <i>Infective and Parasitic diseases</i>					
Cerebrospinal fever ..	1.50	1.04	0.17	0.06	0.08
Cholera .. ..	..	..	..	..	0.07
Dengue	0.70	0.02	0.01	0.05	0.25
Diphtheria	5.37	0.04	0.24	0.02	0.12
Dysentery	29.50	18.50	15.28	19.85	10.72
Enteric group of fevers ..	3.99	0.17	0.27	0.23	0.22
Infective hepatitis (jaundice) ..	9.89	8.05	2.38	7.30	6.87
Malaria	117.45	88.55	101.48	51.15	26.56
Major septic diseases ..	..	..	..	..	0.85
Minor septic diseases ..	39.03	29.30	38.40	26.28	30.40
Mumps	2.92	2.22	6.62	2.68	1.45
Oriental sore	1.56	1.38	0.30	0.45	0.85
Plague	0.04	..	..	..	0.02
Poliomyelitis	0.07	..	0.01	0.01	..
Sandfly fever	24.65	12.78	14.80	13.87	17.96
Scabies	6.80	4.50	4.39	4.16	2.89
Smallpox	0.36	0.90	0.67	0.52	0.03
Tuberculosis	2.04	1.97	2.18	2.55	1.45
Trachoma	1.61	2.74	3.04	1.90	0.78
Typhus fever	0.79	0.07	0.64	0.01	..
Venereal diseases ..	70.85	59.95	44.80	37.76	39.62
Total	319.14	232.18	235.69	168.85	141.18
(2) <i>Diseases of the Blood and Blood forming organs</i>					
Nutritional and other anaemia .. ..	..	..	..	..	1.86
(3) <i>Mental, Psychoneurotic and Personality disorders</i>					
Mental diseases ..	3.38	3.87	3.42	3.50	2.50
(4) <i>Diseases of the Nervous system and sense organs</i>					
ENT diseases .. ..	..	..	..	2.54	5.21
Eye diseases other than trachoma	3.29	13.21	13.77	8.67	7.11
Total	3.29	13.21	13.77	11.21	12.31

TABLE 21—(Contd.)

Diseases		1941*	1942	1943	1944	1945†
(5)	<i>Diseases of the circulatory system</i>					
	Rheumatic fever ..	4.60	0.28	0.25	0.01	0.12
	Other circulatory diseases ..	..	..	..	0.78	0.90
	Total ..	4.60	0.28	0.25	0.79	1.01
(6)	<i>Diseases of the Respiratory system</i>					
	Common cold ..	38.51	28.71	26.11	15.62	9.75
	Tonsillitis ..	5.33	6.63	8.45	5.73	3.19
	Pharyngitis ..	9.89	33.68	20.47	0.49	..
	Influenza ..	4.49	0.18	0.14	0.47	1.46
	Pneumonia ..	..	..	..	..	2.08
	Other respiratory diseases ..	..	..	..	2.33	9.09
	Total ..	58.22	69.20	55.18	24.65	25.53
(7)	<i>Diseases of the digestive system</i>					
	Diarrhoea ..	18.78	19.47	17.40	9.17	6.17
	Other digestive diseases ..	27.92	38.74	51.78	39.00	31.95
	Total ..	44.69	58.21	69.18	48.16	38.12
(8)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases ..	..	..	..	3.07	6.52
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>					
	NYD fever ..	..	..	..	11.12	9.29
	PUO ..	4.01	0.97	4.99	7.36	4.38
	Total ..	4.01	0.97	4.99	18.48	13.67
(10)	<i>All other diseases</i> ..	246.69	191.56	170.00	121.42	79.39
(11)	<i>All diseases</i> ..	686.03	569.52	552.45	400.12	322.16
(12)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>					
	Burns and scalds ..	..	..	..	..	2.00
	Other local injuries ..	52.59	42.22	45.39	39.91	32.52
	Total ..	52.59	42.22	45.39	39.91	34.51
(13)	<i>Accidents, Poisoning and violence (battle injuries)</i>					
	Injuries caused by blast ..	..	..	..	..	0.07
	Bomb wounds ..	..	0.02	..	..	..
	Gunshot wounds ..	3.72	0.62	0.93	0.74	0.73
	Shell wounds ..	0.48	0.02	0.05	..	..
	Total ..	4.19	0.66	0.98	0.74	0.80
(14)	<i>All cases</i> ..	742.82	612.40	598.82	440.77	357.47
(15)	<i>Average daily sick</i> ..	23.73	28.89	28.44	24.26	17.32
(16)	<i>Deaths</i> ..	2.54	2.93	2.32	2.49	2.16

*1941 figures are only for ten months. Figures for April and May are not available.

†1945 figures do not include figures for Indian officers. They are with British troops.

TABLE 22

Relative morbidity rates: Indian Troops (all types): Persia and Iraq Force.

Diseases	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Cerebrospinal fever ..	0.22	0.18	0.03	0.01	0.03
Cholera .. ..	..	..	..	..	0.02
Dengue	0.10	0.00	0.00	0.01	0.04
Diphtheria	0.78	0.01	0.04	0.01	0.03
Dysentery	4.30	3.25	2.77	4.96	3.33
Enteric group of fevers ..	0.58	0.03	0.05	0.06	0.07
Infective hepatitis (jaundice) ..	1.44	1.41	0.43	1.82	2.18
Malaria	17.12	15.55	18.37	12.78	8.24
Major septic diseases ..	..	..	..	..	0.26
Minor septic diseases ..	5.69	5.14	6.95	6.57	9.44
Mumps	0.43	0.39	1.20	0.67	0.45
Oriental sore	0.23	0.24	0.05	0.11	0.26
Plague	0.01	..	..	..	0.00
Polioomyelitis	0.01	..	0.00	0.00	..
Sandfly fever	3.59	2.24	2.68	3.47	5.57
Scabies	0.99	0.79	0.79	1.04	0.90
Smallpox	0.05	0.16	0.12	0.13	0.01
Tuberculosis	0.30	0.34	0.39	0.64	0.45
Trachoma	0.23	0.48	0.55	0.48	0.24
Typhus fever	0.12	0.01	0.11	0.00	..
Venereal diseases	10.33	10.53	8.11	9.44	12.30
Total	46.52	40.77	42.66	42.20	43.82
(2) <i>Diseases of the Blood and Blood forming organs</i>					
Nutritional and other anaemia .. ..	..	..	..	..	0.58
(3) <i>Mental, Psychoneurotic and Personality disorders</i>					
Mental diseases	0.49	0.68	0.62	0.87	0.77
(4) <i>Diseases of the Nervous system and sense organs</i>					
ENT diseases .. ..	..	..	..	0.63	1.62
Eye diseases other than trachoma	0.48	2.32	2.49	2.17	2.21
Total	0.48	2.32	2.49	2.80	3.82
(5) <i>Diseases of the Circulatory system</i>					
Rheumatic fever	0.67	0.05	0.04	0.00	0.04
Other circulatory diseases ..	..	..	..	0.19	0.28
Total	0.67	0.05	0.04	0.20	0.32
(6) <i>Diseases of the Respiratory system</i>					
Common cold	5.61	5.04	4.73	3.90	3.03
Tonsillitis	0.78	1.16	1.53	1.43	0.99
Pharyngitis	1.44	5.91	3.71	0.12	..
Influenza	0.65	0.03	0.03	0.12	0.45

TABLE 22—(Contd.)

	Diseases	1941	1942	1943	1944	1945
	Pneumonia ..	..	..	..	..	0.65
	Other respiratory diseases ..	..	..	..	0.58	2.82
	Total ..	8.48	12.14	10.00	6.16	7.94
(7)	<i>Diseases of the Digestive system</i>					
	Diarrhoea ..	2.74	3.42	3.15	2.29	1.92
	Other digestive diseases ..	4.07	6.80	9.37	9.75	9.92
	Total ..	6.81	10.22	12.52	12.04	11.83
(8)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases ..	..	..	..	0.77	2.02
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>					
	NYD fever ..	..	..	..	2.78	2.88
	PUO ..	0.58	0.17	0.90	1.84	1.36
	Total ..	0.58	0.17	0.90	4.62	4.24
(10)	<i>All other diseases</i> ..	35.95	33.64	30.76	30.34	24.65
(11)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00	100.00

TABLE 23

Relative Casualty rates: Indian Troops (all types): Persia and Iraq Force.

	Specialist Groups	1941	1942	1943	1944	1945
(1)	Infective and parasitic diseases ..	42.96	37.91	39.36	38.31	39.49
(2)	Diseases of the blood and blood forming organs ..	..	..	..	..	0.52
(3)	Mental, psychoneurotic and personality disorders ..	0.45	0.63	0.57	0.79	0.70
(4)	Diseases of the nervous system and sense organs ..	0.44	2.16	2.30	2.54	3.44
(5)	Diseases of the circulatory system ..	0.62	0.05	0.04	0.18	0.28
(6)	Diseases of the respiratory system ..	7.84	11.30	9.21	5.59	7.16
(7)	Diseases of the digestive system ..	6.29	9.50	11.55	10.93	10.66
(8)	Diseases of the skin and cellular tissue ..	..	..	..	0.70	1.82
(9)	<i>Symptoms, Senility and ill-defined conditions</i> ..	0.54	0.16	0.83	4.19	3.82
(10)	<i>All other diseases</i> ..	33.21	31.28	28.39	27.55	22.21
(11)	<i>All diseases</i> ..	92.36	93.00	92.26	90.78	90.13
(12)	<i>Non-battle injuries</i> ..	7.08	6.89	7.58	9.05	9.65
(13)	<i>Battle injuries</i> ..	0.56	0.11	0.16	0.17	0.22
(14)	<i>All cases</i> ..	100.00	100.00	100.00	100.00	100.00

Section VI

BRITISH OTHER RANKS

The first impact of the rebellion in Iraq and of the hostilities in Persia and the surrounding areas fell on the few British troops that were already in that area. When reinforcements began to pour in from May 1941 and later, quite a large number of Indian troops also were included in them. At one time there were as many as four Indian Divisions in the area. They were the 5th, 6th, 8th, and 10th Indian Divisions. Morbidity history of the Indian troops has already been covered. What follows now will be the morbidity history of the British troops. Period covered will be from June 1941 to 1945.

Annual rates of absolute morbidity, relative morbidity and relative casualty are given in Tables 24, 25 and 26 respectively. On a comparison of the absolute incidence amongst the British other ranks and the Indian other ranks, it will be found that the former suffered at a higher rate of overall morbidity than the latter, each year. In 1941, the B.O.R. rate was 14 per cent. higher than the corresponding Indian rate; it was 53 per cent. higher in 1942; 20 per cent. higher in 1943; 36 per cent. higher in 1944 and 64 per cent. higher in 1945.

These are very large variations and can perhaps at best be attributed to the difference in race of the two types of troops involved. To arrive at this conclusion statistically would involve, at the outset, the vital information about their age structure etc., which is not available.

On a further closer examination of the two sets of figures, it will be seen that about similar or greater differences (higher British rates) apply also to most of the individual causes also. The relevant figures are reproduced below:—

Diseases	1941	1942	1943	1944	1945
(a) Dysentery BORs ..	49.6	57.1	28.2	63.7	51.4
VCOs & IORs ..	34.9	20.0	16.7	22.3	11.5
(b) Hepatitis BORs ..	19.7	26.1	2.9	6.9	9.9
VCOs & IORs ..	11.6	9.2	2.6	8.0	7.7
(c) Sandfly fever BORs ..	85.4	73.9	71.4	64.2	46.3
VCOs & IORs ..	28.0	14.3	16.5	15.8	18.9
(d) Venereal diseases BORs	78.8	75.1	36.2	48.2	69.2
VCOs & IORs ..	65.5	56.9	44.0	38.3	37.6
(e) Tonsillitis BORs ..	43.9	54.3	43.8	23.9	16.0
VCOs & IORs ..	5.6	7.4	9.7	6.8	3.6
(f) Diarrhoea BORs ..	44.2	65.8	43.4	33.6	21.9
VCOs & IORs ..	21.2	21.1	19.0	10.1	6.2
(g) Heat effects BORs ..	25.9	49.3	14.3	2.2	12.0
VCOs & IORs ..	9.7	2.9	6.7	0.1	0.4

Most of these differences are significant. Similar argument applies in respect of most of the other causes. The outstanding examples of lower British rates are malaria, pharyngitis, common cold, cerebrospinal fever and oriental sore.

The relative positions of some of the major causes of incidence among the BORs are illustrated in the following table (In this connection the relative rates Table 25 also refers).

Diseases	1941	1942	1943	1944	1945
Venereal diseases ..	(3)	(1)	(7)	(3)	(1)
Malaria ..	(1)	(3)	(2)	(5)	(8)
Sandfly fever ..	(2)	(2)	(1)	(1)	(4)
Minor septic diseases ..	(4)	(9)	(4)	(6)	(5)
Dysentery ..	(5)	(5)	(8)	(2)	(2)
Diarrhoea ..	(6)	(4)	(6)	(7)	(7)
Tonsillitis ..	(7)	(6)	(5)	(8)	(9)
Injuries (NEA) ..	(8)	(7)	(3)	(4)	(3)
Heat effects ..	(9)	(8)	(10)	(13)	(10)
Hepatitis ..	(10)	(10)	(13)	(11)	(11)
Scabies ..	(11)	(12)	(11)	(12)	(13)
Common cold ..	(12)	(13)	(12)	(10)	(12)
Pharyngitis ..	(13)	(11)	(9)	..	..
Skin diseases ..	..	..	..	(9)	(6)

In considering these relative positions, another important fact should be kept before attention. That the overall casualty rate increased in 1942 and kept on decreasing thereafter. The fall in the positions of venereal diseases, malaria, tonsillitis, heat effects and hepatitis indicates a satisfactory situation of morbidity from these causes. A rise in the relative positions of sandfly fever, dysentery, injuries (NEA) pharyngitis and skin diseases, on the other hand, cannot conclusively prove a worsening situation, if for no other reason, at least, for the fact that these rises are against a general falling rate of morbidity.

It may be seen in Table 24 that malaria registered consistently falling incidence over the period. The rate in 1945 was less than one-fourth of what it was in 1941. Venereal diseases did not behave in this fashion. In 1943, the rate of incidence from these diseases was less than a half of what it was in the earlier two years but it again started rising in 1944 and ended up in 1945 at about the rate in 1941 and 1942. Sandfly fever kept on falling but dysentery behaved erratically. Figures of monthly admissions from malaria, venereal diseases and dysentery are given in Tables 27, 28 and 29 respectively. Before comparing these figures it should be kept in mind that during November-December of 1942 and January to April 1943, very large fluctuations in the strength of BORs, took place. Except for these months there was a gradual increase in the strength figures from the beginning of this period to a peak in January 1943 whereafter it started decreasing, rapidly first and slowly afterwards. Against this background, malaria admissions in July 1941, in July to September 1943, July to October 1943 and in May and June of 1945 appear higher. This covers the period of high incidence of malaria, each year. Admissions due to venereal diseases do not lend themselves for such a seasonal trend. Dysentery, on the other hand, seems to have registered higher admissions around March to May each year.

Tables 30 and 31 provide figures of monthly admissions from all causes and those of average daily under treatment from all causes, on this front. The first set of figures seem to have led to produce the second set, without any fixed relationship between the individual items of the two.

Figures of annual average daily sick rates per 1,000 strength are given in Table 24. The relevant rates were 38 daily per 1,000 in 1941; 44 in 1942; 41 in 1943; 40 in 1944 and 26 in 1945. These seem to follow the trend of the overall morbidity rates, over this period.

It will be seen from the table of relative casualty rates (Table 26) that infective and parasitic diseases accounted each year for about 36 per cent. to 40 per cent. of all admissions, except in 1941, when they were 45 per cent. Diseases of the respiratory system contributed about 9 per cent.; those of the digestive system fluctuated between 10 to 15 per cent. and injuries (NEA) were responsible from 4 to 8 per cent. of all admissions.

TABLE 24

Admissions to Hospitals—Annual rates per 1,000 strength: BORs: Persia and Iraq Force.

Diseases	June to Dec. 1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Cerebrospinal fever ..	..	0.11	0.13	0.06	0.10
Dengue	0.27	..	..	0.46	0.82
Diphtheria	1.99	3.38	6.33	0.79	0.31
Dysentery	49.55	57.10	28.24	63.70	51.38
Enteric group of fever ..	2.17	0.77	0.60	0.65	0.71
Infective hepatitis (Jaundice) ..	19.71	26.08	2.90	6.87	9.91
Malaria	87.53	71.91	60.27	39.80	20.43
Major septic diseases ..	..	..	..	..	0.71
Minor septic diseases ..	72.16	49.08	47.17	35.88	41.17
Mumps	0.09	1.26	0.54	0.39	0.20
Oriental sore .. ..	..	0.63	0.11	0.13	..
Poliomyelitis .. ..	..	0.11	0.13	0.13	0.10
Sandfly fever	85.45	73.89	71.40	64.16	46.28
Scabies	9.86	16.76	13.33	3.01	1.84
Smallpox	0.36	2.53	0.73	0.65	..
Tuberculosis	1.08	1.65	0.95	1.77	1.63
Trachoma	0.54	0.47	0.17	..	0.20
Typhus fever	2.26	0.14	0.45	..	..
Venereal diseases	78.85	75.10	36.22	48.25	69.16
Total	411.88	380.97	269.68	266.71	244.87
(2) <i>Diseases of the Blood and Blood forming organs</i>					
Nutritional and other anaemia .. ..	..	..	..	..	0.92
(3) <i>Mental, Psychoneurotic and Personality disorders</i>					
Mental diseases ..	2.17	4.84	4.90	7.07	9.50

TABLE 24—(Contd.)

Diseases	June to Dec. 1941	1942	1943	1944	1945
(4) <i>Diseases of the Nervous system and sense organs</i>					
ENT diseases ..	..	..	..	11.06	19.72
Eye diseases other than trachoma ..	..	9.29	9.23	5.11	5.52
Total ..	..	9.29	9.23	16.17	25.23
(5) <i>Diseases of the Circulatory system</i>					
Rheumatic fever ..	2.08	1.07	0.86	0.13	0.20
Other circulatory diseases ..	..	..	..	2.36	3.27
Total ..	2.08	1.07	0.86	2.49	3.47
(6) <i>Diseases of the Respiratory system</i>					
Common cold ..	9.04	9.37	10.05	10.15	6.13
Tonsillitis ..	43.86	54.30	43.78	23.89	16.04
Pharyngitis ..	8.14	18.33	15.56	..	..
Influenza ..	5.79	0.80	1.21	0.98	0.20
Pneumonia ..	..	..	..	..	5.41
Other respiratory diseases ..	..	..	..	4.58	11.24
Total ..	66.82	82.79	70.60	39.61	39.02
(7) <i>Diseases of the Digestive system</i>					
Diarrhoea ..	44.22	65.84	43.35	33.58	21.86
Other digestive diseases ..	49.46	73.37	69.21	68.94	47.20
Total ..	93.68	139.21	112.56	102.52	69.06
(8) <i>Diseases of the Skin and Cellular tissues</i>					
Skin diseases ..	..	..	..	22.85	33.40
(9) <i>Symptoms, Senility and Ill-defined conditions</i>					
NYD fever ..	..	..	..	16.82	9.91
PUO ..	2.17	1.24	3.56	8.38	5.82
Total ..	2.17	1.24	3.56	25.20	15.73
(10) <i>All other diseases</i> ..	297.67	321.40	235.72	151.75	134.23
(11) <i>All diseases</i> ..	876.48	940.81	707.13	634.37	575.54
(12) <i>Accidents, Poisoning and violence (non-battle injuries)</i>					
Burns and scalds ..	..	..	..	..	1.43
Other local injuries ..	37.89	51.22	48.64	44.84	48.32
Total ..	37.89	51.22	48.64	44.84	49.75
(13) <i>Accidents Poisoning and violence (battle injuries)</i>					
Gunshot wounds ..	2.98	0.69	0.89	0.52	0.41
Shell wounds ..	1.63	..	0.04	..	..
Total ..	4.61	0.69	0.93	0.52	0.41
(14) <i>All cases</i> ..	918.98	992.72	756.70	679.74	625.70
(15) <i>Average daily sick</i> ..	38.45	43.65	40.86	39.61	25.90
(16) <i>Deaths</i> ..	2.71	4.95	2.49	2.42	1.94

TABLE 25
Relative morbidity rates: BORs: Persia and Iraq Force.

Diseases	(June to Dec.) 1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Cerebrospinal fever ..	..	0.01	0.02	0.01	0.02
Dengue ..	0.03	..	..	0.07	0.14
Diphtheria ..	0.23	0.36	0.89	0.12	0.05
Dysentery ..	5.65	6.07	3.99	10.04	8.93
Enteric group of fevers	0.25	0.08	0.09	0.10	0.12
Infective hepatitis (Jaundice) ..	2.25	2.77	0.41	1.08	1.72
Malaria ..	9.99	7.64	8.52	6.27	3.55
Major septic diseases ..	..	..	..	..	0.12
Minor septic diseases ..	8.23	5.22	6.67	5.65	7.15
Mumps ..	0.01	0.13	0.08	0.06	0.03
Oriental sore ..	..	0.07	0.01	0.02	..
Poliomyelitis ..	..	0.01	0.02	0.02	0.02
Sandfly fever ..	9.75	7.85	10.10	10.11	8.04
Scabies ..	1.12	1.78	1.88	0.47	0.32
Smallpox ..	0.04	0.27	0.10	0.10	..
Tuberculosis ..	0.12	0.17	0.13	0.28	0.28
Trachoma ..	0.06	0.05	0.02	..	0.03
Typhus fever ..	0.26	0.01	0.06	..	..
Venereal diseases ..	9.00	7.98	5.12	7.61	12.02
Total ..	46.99	40.49	38.14	42.04	42.57
(2) <i>Diseases of the Blood and Blood forming organs</i>					
Nutritional and other anaemia ..	..	..	..	..	0.16
(3) <i>Mental, Psychoneurotic and Personality disorders</i>					
Mental diseases ..	0.25	0.51	0.69	1.11	1.65
(4) <i>Diseases of the Nervous system and sense organs</i>					
ENT diseases ..	..	..	..	1.74	3.43
Eye diseases other than trachoma ..	..	0.99	1.30	0.80	0.96
Total ..	..	0.99	1.30	2.55	4.38
(5) <i>Diseases of the Circulatory system</i>					
Rheumatic fever ..	0.24	0.11	0.12	0.02	0.03
Other circulatory diseases ..	..	..	..	0.37	0.57
Total ..	0.24	0.11	0.12	0.39	0.60
(6) <i>Diseases of the Respiratory system</i>					
Common cold ..	1.03	1.00	1.42	1.60	1.06
Tonsillitis ..	5.00	5.77	6.19	3.77	2.79
Pharyngitis ..	0.93	1.95	2.20	..	..
Influenza ..	0.66	0.08	0.17	0.15	0.03

TABLE 25—(Contd.)

Diseases	(June to Dec.) 1941	1942	1943	1944	1945
Pneumonia ..	..	..	..	..	0.94
Other respiratory diseases ..	..	..	..	0.72	1.95
Total ..	7.62	8.80	9.98	6.24	6.77
(7) <i>Diseases of the Digestive system</i>					
Diarrhoea ..	5.04	7.00	6.13	5.29	3.80
Other digestive diseases ..	5.64	7.80	9.79	10.87	8.20
Total ..	10.69	14.80	15.92	16.16	12.00
(8) <i>Diseases of the Skin and Cellular tissues</i>					
Skin diseases ..	..	..	..	3.60	5.80
(9) <i>Symptoms, Senility and Ill-defined conditions</i>					
NYD fever ..	..	..	..	2.65	1.72
PUO ..	0.25	0.13	0.50	1.32	1.01
Total ..	0.25	0.13	0.50	3.97	2.73
(10) <i>All other diseases</i> ..	33.96	34.16	33.33	23.92	23.32
(11) <i>All diseases</i> ..	100.00	100.00	100.00	100.00	100.00

TABLE 26

Relative casualty rates: BORs: Persia and Iraq Force.

Specialist Groups	(June to Dec.) 1941	1942	1943	1944	1945
(1) Infective and Parasitic diseases ..	44.82	38.38	35.64	39.24	39.15
(2) Diseases of the blood and blood forming organs ..	..	..	..	..	0.15
(3) Mental, psychoneurotic and personality disorders ..	0.24	0.49	0.65	1.04	1.52
(4) Diseases of the nervous system and sense organs ..	..	0.94	1.22	2.38	4.03
(5) Diseases of the circulatory system ..	0.23	0.11	0.11	0.37	0.55
(6) Diseases of the respiratory system ..	7.27	8.34	9.33	5.82	6.24
(7) Diseases of the digestive system ..	10.19	14.02	14.87	15.08	11.04
(8) Diseases of the skin and cellular tissue ..	..	..	..	3.36	5.34
(9) Symptoms, senility and ill-defined conditions ..	0.24	0.12	0.47	3.71	2.51
(10) All other diseases ..	32.39	32.38	31.16	22.33	21.45
(11) All diseases ..	95.38	94.77	93.45	93.32	91.98
(12) Non-battle injuries ..	4.12	5.16	6.43	6.60	7.95
(13) Battle injuries ..	0.50	0.07	0.12	0.08	0.07
(14) All cases ..	100.00	100.00	100.00	100.00	100.00

TABLE 27
Seasonal Variation in Malaria: BORs.

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	..	..	..	..	..	117	309	107	177	118	81	59	968
(2) 1942	25	33	42	44	72	221	221	197	375	507	561	319	2617
(3) 1943	166	130	210	161	138	278	374	340	370	274	212	136	2789
(4) 1944	71	24	33	52	39	68	73	53	62	62	55	16	608
(5) 1945	5	6	8	12	40	41	19	25	21	11	7	5	200

TABLE 28
Seasonal Variation in Venereal Diseases: BORs.

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	..	...	..	..	..	19	77	106	38	112	301	219	872
(2) 1942	213	190	237	206	267	213	190	176	279	232	253	277	2733
(3) 1943	280	170	167	172	175	122	104	110	103	76	95	102	1676
(4) 1944	114	87	86	85	64	65	42	43	30	50	33	38	737
(5) 1945	44	29	59	56	69	79	74	72	71	59	34	31	677

TABLE 29
Seasonal Variation in Dysentery: BORs.

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	Actual admissions	..	..	..	..	23	36	46	13	168	207	55	548
(2) 1942	Actual admissions	20	16	170	247	149	84	93	225	402	356	232	2078
(3) 1943	Actual admissions	129	49	70	142	172	101	115	113	100	109	81	1307
(4) 1944	Actual admissions	38	48	51	77	97	74	81	99	112	122	63	973
(5) 1945	Actual admissions	25	12	13	43	72	42	43	58	54	44	39	503

TABLE 30
Monthly admissions all causes: BORs.

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	Actual admissions	..	..	..	..	546	1728	1902	631	1196	2281	1879	10163
(2) 1942	Actual admissions	1703	1587	1931	1866	2845	2980	3899	4126	4294	4848	3876	36126
(3) 1943	Actual admissions	5060	3383	3608	2939	2794	3613	3144	2542	1997	1562	1236	35018
(4) 1944	Actual admissions	1001	818	936	922	966	894	837	864	888	745	540	10383
(5) 1945	Actual admissions	477	397	424	448	638	682	714	588	476	352	286	6125

TABLE 31

Average daily sick (all causes): BORs.

Year		Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
(1) 1941	Actual admissions	..	..	..	..	..	132.36	95.68	374.39	203.12	270.96	913.42	986.77	425.24
(2) 1942	Actual admissions	1037.16	1126.08	1140.84	1043.39	1189.82	1236.45	1439.63	1556.89	1829.79	2356.06	2457.72	2649.99	1588.65
(3) 1943	Actual admissions	3173.87	3205.27	2780.77	2143.12	1695.68	1460.76	1782.99	1602.95	1554.36	1195.96	1116.24	977.85	1890.82
(4) 1944	Actual admissions	792.70	669.19	706.38	665.71	595.14	566.83	567.81	851.68	452.06	492.06	488.19	413.31	605.09
(5) 1945	Actual admissions	379.57	294.80	262.68	236.08	262.48	275.69	274.58	284.66	239.09	195.65	173.11	164.24	253.55

Section VII

BRITISH OFFICERS

This section includes British Officers both of Indian and British Service. The average strength of these troops did not exceed about six thousand during the period under consideration. Most of the time, it was much less. Absolute rates of incidence in respect of these troops, in Persia and Iraq, are given in Table 32. Their relative rates and relative casualty rates are given in Tables 33 and 34 respectively.

The overall rate of incidence of British Officers was 740·74; 762·02; 587·13; 624·22 and 423·68 from 1941 to 1945 respectively. These rates, however, compare very favourably with the corresponding figures of the British Other Ranks.

British Officers drew very close to the British Other Ranks in their morbidity from sandfly fever, each year. The former seem to have suffered at higher rates, particularly from hepatitis and pharyngitis; and at specially lower rates from venereal diseases, minor septic diseases, dysentery and malaria. Differences of one or the other of the foregoing type may be observed in respect of other causes also.

Sandfly fever was the most common cause of admissions among the British Officers, followed by malaria, diarrhoea and dysentery. Hepatitis too was a bit more severe on them. In respect of individual causes, malaria, mumps, sandfly fever, rheumatic fever, common cold and skin diseases registered falling rates over the period as a whole but others did not show any definite trend. There were about 43 daily sick, with a rate of 28 per 1,000 in 1941; 117 daily sick (or 29 per 1,000) in 1942; 162 daily sick (or 29 per 1,000) in 1943; 66 daily sick (or 26 per 1,000) in 1944 and 36 daily sick (or 16 per 1,000) in 1945.

Another fact that can be gathered from Table 34 of relative casualty rates is that infective and parasitic diseases did not account for as heavy proportions of total admissions in the British as in other categories of troops so far considered. It varied between 20 and 30 per cent. generally. Digestive diseases, on the other hand, were responsible for comparatively higher percentages of admissions each year, than in the other troops. The other important group of diseases, as usual, was the respiratory diseases.

TABLE 32

*Admissions to Hospitals—Annual rates per 1,000 strength: British Officers:
Persia and Iraq Force.*

Diseases	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Cerebrospinal fever ..	..	0.49	0.53	..	..
Dengue ..	..	..	..	..	1.80
Diphtheria ..	0.63	3.19	3.17	0.39	..
Dysentery ..	20.09	49.56	30.60	47.41	29.70
Enteric group of fevers ..	7.53	2.45	1.06	0.78	0.90
Infective hepatitis (Jaundice) ..	28.88	45.63	2.46	13.71	9.00
Malaria ..	57.12	55.94	45.89	36.05	16.21
Minor septic diseases ..	35.78	30.42	22.68	30.96	22.51
Mumps ..	..	2.94	1.23	0.39	..
Oriental sore ..	..	0.49	0.35	..	..
Poliomyelitis ..	..	..	0.35	0.39	..
Sandfly fever ..	72.19	58.39	58.73	53.68	25.21
Scabies ..	1.88	1.23	2.11	2.74	..
Smallpox ..	..	1.72	1.76	0.39	..
Tuberculosis ..	1.26	1.72	0.88	1.18	1.35
Trachoma ..	..	0.49	0.18	..	..
Typhus fever ..	..	..	0.53	0.78	0.45
Venereal diseases ..	4.39	8.83	7.21	5.49	6.30
Total ..	229.75	263.49	179.71	194.36	113.46
(2) <i>Diseases of the Blood and Blood forming organs</i>					
Nutritional and other anaemia ..	..	..	..	..	0.45
(3) <i>Mental, Psychoneurotic and Personality disorders</i>					
Mental diseases ..	10.67	8.34	4.04	9.01	4.95
(4) <i>Diseases of the Nervous system and sense organs</i>					
ENT diseases ..	..	..	..	11.76	16.21
Eye diseases other than trachoma ..	..	3.43	4.04	2.74	2.70
Total ..	..	3.43	4.04	14.50	18.91
(5) <i>Diseases of the Circulatory system</i>					
Rheumatic fever ..	5.02	0.49	0.35	..	0.45
Other circulatory diseases ..	..	..	..	1.96	2.25
Total ..	5.02	0.49	0.35	1.96	2.70
(6) <i>Diseases of the Respiratory system</i>					
Common cold ..	12.55	8.83	7.39	7.05	6.75
Tonsillitis ..	21.97	35.33	27.61	25.47	8.10
Pharyngitis ..	13.81	21.84	17.58	0.39	..
Influenza ..	3.77	0.98	1.06	0.39	1.80
Pneumonia ..	..	..	..	..	2.70
Other respiratory diseases ..	..	..	..	2.74	5.40
Total ..	52.10	66.98	53.63	36.05	24.76

TABLE 32—(Contd.)

Diseases		1941	1942	1943	1944	1945
(7)	<i>Diseases of the Digestive system</i>					
	Diarrhoea	44.57	69.19	39.39	23.51	24.31
	Other digestive diseases	33.90	61.82	72.45	72.88	39.62
	Total	78.47	131.01	111.83	96.39	63.93
(8)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases ..	..	..	..	18.02	11.71
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>					
	NYD fever ..	..	..	..	14.50	12.61
	PUO	0.63	0.49	2.29	6.27	8.10
	Total	0.63	0.49	2.29	20.77	20.71
(10)	<i>All other diseases</i> ..	327.06	251.47	189.91	181.43	130.57
(11)	<i>All diseases</i>	703.70	725.71	545.81	572.49	392.16
(12)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>					
	Burns and scalds ..	..	..	..	..	0.45
	Other local injuries ..	28.24	35.57	39.39	49.76	30.17
	Total	28.24	35.57	39.39	49.76	30.62
(13)	<i>Accidents, Poisoning and violence (battle injuries)</i>					
	Gunshot wounds ..	7.53	0.74	1.93	1.96	0.90
	Shell wounds ..	1.26	..	..	..	..
	Total	8.79	0.74	1.93	1.96	0.90
(14)	<i>All cases</i>	740.74	762.02	587.13	624.22	423.68
(15)	<i>Average daily sick</i> ..	27.53	28.68	28.56	25.77	16.29
(16)	<i>Deaths</i>	5.02	5.40	4.04	4.31	4.50

TABLE 33

Relative morbidity rates: British Officers: Persia and Iraq Force.

Diseases		1941	1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>					
	Cerebrospinal fever ..	..	0.07	0.10	..	..
	Dengue .. ..	..	..	..	..	0.46
	Diphtheria	0.09	0.44	0.58	0.07	..
	Dysentery	2.85	6.83	5.61	8.28	7.58
	Enteric group of fevers ..	1.07	0.34	0.19	0.13	0.23
	Infective hepatitis (Jaundice) ..	4.10	6.29	0.45	2.40	2.30
	Malaria	8.12	7.71	8.41	6.30	4.13
	Minor septic diseases ..	5.08	4.19	4.16	5.41	5.74
	Mumps .. ..	..	0.41	0.23	0.07	..
	Oriental sore .. ..	..	0.07	0.06	..	..
	Poliomyelitis .. ..	..	..	0.06	0.07	..

TABLE 33—(Contd.)

Diseases		1941	1942	1943	1944	1945
	Sandfly fever ..	10.26	8.05	10.76	9.38	6.43
	Scabies ..	0.27	0.17	0.39	0.48	..
	Smallpox ..	..	0.24	0.32	0.07	..
	Tuberculosis ..	0.18	0.24	0.16	0.21	0.34
	Trachoma ..	..	0.07	0.03	..	..
	Typhus fever ..	..	..	0.10	0.13	0.11
	Veneral diseases ..	0.62	1.22	1.32	0.96	1.61
	Total ..	32.65	36.31	32.92	33.95	28.93
(2)	<i>Diseases of the Blood and Blood forming organs</i>					
	Nutritional and other anaemia ..	..	..	..	..	0.11
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>					
	Mental diseases ..	1.52	1.15	0.74	1.57	1.26
(4)	<i>Diseases of the Nervous system and sense organs</i>					
	ENT diseases ..	..	..	..	2.05	4.13
	Eye diseases other than trachoma ..	..	0.47	0.74	0.48	0.69
	Total ..	..	0.47	0.74	2.53	4.82
(5)	<i>Diseases of the Circulatory system</i>					
	Rheumatic fever ..	0.71	0.07	0.06	..	0.11
	Other circulatory diseases ..	..	..	..	0.34	0.57
	Total ..	0.71	0.07	0.06	0.34	0.69
(6)	<i>Diseases of the Respiratory system</i>					
	Common cold ..	1.78	1.22	1.35	1.23	1.72
	Tonsillitis ..	3.12	4.87	5.07	4.45	2.07
	Pharyngitis ..	1.96	3.01	3.22	0.07	..
	Influenza ..	0.53	0.14	0.19	0.07	0.46
	Pneumonia ..	..	..	..	..	0.69
	Other respiratory diseases ..	..	..	..	0.48	1.38
	Total ..	7.40	9.23	9.83	6.30	6.31
(7)	<i>Diseases of the Digestive system</i>					
	Diarrhoea ..	6.33	9.53	7.22	4.11	6.20
	Other digestive diseases ..	4.82	8.52	13.27	12.73	10.10
	Total ..	11.15	18.05	20.49	16.84	16.30
(8)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases ..	..	..	..	3.15	2.99
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>					
	NYD fever ..	..	..	..	2.53	3.21
	PUO ..	0.09	0.07	0.42	1.10	2.07
	Total ..	0.09	0.07	0.42	3.63	5.28
(10)	<i>All other diseases</i> ..	46.48	34.65	34.79	31.69	33.29
(11)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00	100.00

TABLE 34

Relative casualty rates: British Officers: Persia and Iraq Force.

Specialist Groups	1941	1942	1943	1944	1945
(1) Infective and parasitic diseases	31.02	34.58	30.61	31.14	26.78
(2) Diseases of the blood and blood forming organs ..	..	..	..	..	0.11
(3) Mental, Psychoneurotic and personality disorders	1.44	1.09	0.69	1.44	1.17
(4) Diseases of the nervous system and sense organs ..	..	0.45	0.69	2.32	4.46
(5) Diseases of the circulatory system	0.68	0.06	0.06	0.31	0.64
(6) Diseases of the respiratory system	7.03	8.79	9.13	5.78	5.84
(7) Diseases of the digestive system	10.59	17.19	19.05	15.44	15.09
(8) Diseases of the skin and cellular tissue ..	..	..	..	2.89	2.76
(9) Symptoms, senility and ill-defined conditions ..	0.08	0.06	0.39	3.33	4.89
(10) All other diseases ..	44.15	33.00	32.34	29.06	30.82
(11) All diseases ..	95.00	95.23	92.96	91.72	92.56
(12) Non-battle injuries ..	3.81	4.67	6.71	7.97	7.23
(13) Battle injuries ..	1.19	0.10	0.33	0.31	0.21
(14) All cases ..	100.00	100.00	100.00	100.00	100.00

Section VIII

MILITARY NURSING SERVICE (BRITISH SERVICE) (MNS(BS))

Absolute and relative morbidity rates of MNS(BS) are given in Tables 44 and 45. Very few of these troops were posted in this area, particularly during 1941 and 1945. During the other three years, their annual average strength was more than 100 but less than 300. During these latter years they had produced 292 admissions in 1942; 347 in 1943 and 150 in 1944. Their average daily sick numbers respectively were 11 in 1942; 13 in 1943 and 3 in 1944. As compared to overall absolute rates of Indian nurses (Table 19), British nurses registered very higher rates in 1942 to 1945. It seems dysentery, diarrhoea, sandfly fever, malaria and other digestive diseases were responsible for a large majority of these admissions each year.

The spread of the major causes of morbidity in the case of the women's services does not seem to differ from that in the case of male British troops (Tables 24 and 25).

TABLE 35

Admissions to Hospitals—Annual rates per 1,000 strength: MNS(BS): Persia and Iraq Force.

Diseases	(June to Dec.) 1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Dengue .. ..	..	..	..	8.77	..
Diphtheria	31.25	4.24	6.45	..	..
Dysentery	62.50	144.07	103.23	263.16	141.03
Enteric group of fevers ..	..	8.47	3.23	..	..
Infective hepatitis (Jaundice) .. ..	..	29.66	..	8.77	..
Malaria	31.25	46.61	41.93	8.77	12.82
Minor septic diseases ..	31.25	33.90	38.71	35.09	12.82
Sandfly fever	62.50	122.88	177.42	131.58	25.64
Scabies .. ..	..	4.24	..	..	..
Smallpox .. ..	..	4.24	..	..	..
Tuberculosis .. ..	..	..	..	..	12.82
Total	218.75	398.31	370.97	456.14	205.13
(2) <i>Diseases of the Blood and Blood forming organs</i>					
Nutritional and other anaemia .. ..	..	..	..	..	12.82
(3) <i>Mental, Psychoneurotic and Personality disorders</i>					
Mental diseases .. ..	..	4.24	3.23	..	..
(4) <i>Diseases of the Nervous system and sense organs</i>					
ENT diseases .. ..	..	..	..	17.54	25.64

TABLE 35—(Contd.)

Diseases	(June to Dec.) 1941	1942	1943	1944	1945
Eye diseases other than trachoma .. ..	..	4.24	..	..	..
Total .. ..	..	4.24	..	17.54	25.64
(5) <i>Diseases of the Respiratory system</i>					
Common cold .. ..	..	8.47	29.03	8.77	..
Tonsillitis	31.25	46.61	90.32	122.81	25.64
Pharyngitis .. ..	..	25.42	32.26	..	..
Other respiratory diseases .. ..	..	..	..	26.32	..
Total	31.25	80.50	151.61	137.89	25.64
(6) <i>Diseases of the Digestive system</i>					
Diarrhoea .. ..	..	118.64	45.16	35.09	38.46
Other digestive diseases .. ..	..	211.86	122.58	105.26	38.46
Total .. ..	..	330.51	167.74	140.35	76.92
(7) <i>Diseases of the Skin and Cellular tissues</i>					
Skin diseases .. ..	..	..	..	52.63	..
(8) <i>Symptoms, Senility and ill-defined conditions</i>					
NYD fever .. ..	..	..	..	35.09	..
PUO .. ..	..	..	..	..	25.64
Total .. ..	..	..	..	35.09	25.64
(9) <i>All other diseases</i>	281.25	389.84	383.87	368.42	205.13
(10) <i>All diseases</i>	531.25	1207.63	1077.42	1228.07	576.92
(11) <i>Accidents, Poisoning and violence (non-battle injuries)</i>					
Burns and scalds .. ..	..	..	..	..	..
Other local injuries .. ..	..	29.66	41.93	87.72	51.28
Total .. ..	..	29.66	41.93	87.72	51.28
(12) <i>All cases</i>	531.25	1237.29	1019.35	1315.78	628.20
(13) <i>Average daily sick</i>	30.00	47.29	41.00	25.44	25.64
(14) <i>Deaths</i> .. ..	..	4.24	32.26	17.54	12.82

TABLE 36

Relative morbidity rates: MNS(BS): Persia and Iraq Force.

Diseases	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Dengue .. ..	..	..	..	0.71	..
Diphtheria	5.88	0.35	0.60	..	..
Dysentery	11.76	11.93	9.58	21.43	24.44
Enteric group of fevers .. ..	..	0.70	0.30	..	..

TABLE 36—(Contd.)

Diseases		1941	1942	1943	1944	1945
	Infective hepatitis (Jaundice) ..	..	2.46	..	0.71	..
	Malaria ..	5.88	3.86	3.89	0.71	2.22
	Minor septic diseases ..	5.88	2.81	3.59	2.86	2.22
	Sandfly fever ..	11.76	10.17	16.47	10.71	4.44
	Scabies ..	..	0.35	..	..	..
	Smallpox ..	..	0.35	..	..	..
	Tuberculosis ..	..	..	..	..	2.22
	Total ..	41.18	32.98	34.44	37.15	35.55
(2)	<i>Diseases of the Blood and Blood forming organs</i>					
	Nutritional and other anaemia ..	..	..	..	..	2.22
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>					
	Mental diseases ..	..	0.35	0.30	..	..
(4)	<i>Diseases of the Nervous system and sense organs</i>					
	ENT diseases ..	..	..	..	1.43	4.44
	Eye diseases other than trachoma ..	..	0.35	..	..	..
	Total ..	..	0.35	..	1.43	4.44
(5)	<i>Diseases of the Respiratory system</i>					
	Common cold ..	..	0.70	2.69	0.71	..
	Tonsillitis ..	5.88	3.86	8.38	10.00	4.44
	Pharyngitis ..	..	2.10	2.99	..	..
	Other respiratory diseases ..	..	..	..	2.14	..
	Total ..	5.88	6.66	14.06	12.85	4.44
(6)	<i>Diseases of the Digestive system</i>					
	Diarrhoea ..	..	9.82	4.19	2.86	6.67
	Other digestive diseases ..	..	17.54	11.38	8.57	6.67
	Total ..	..	27.37	15.57	11.43	13.33
(7)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases ..	..	..	..	4.29	..
(8)	<i>Symptoms, Senility and Ill-defined conditions</i>					
	NYD fever ..	..	..	..	2.86	..
	PUO ..	..	..	..	..	4.44
	Total ..	..	..	..	2.86	4.44
(9)	<i>All other diseases</i> ..	52.94	32.28	35.63	30.00	35.55
(10)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00	100.00

Section IX

BRITISH TROOPS (ALL TYPES)

A tale similar to that of the British other ranks gets repeated if the morbidity history of all British troops in Persia and Iraq is again considered (Tables 24 to 26 and 37 to 39). That perhaps is due to the fact that a larger share in their total strength is contributed by the British other ranks. For instance, their overall morbidity rates were 896 per 1,000 in 1941; 959 in 1942; 740 in 1943; 676 in 1944 and 589 in 1945. These rates show smaller variations from the corresponding BORs rates and from British Officers rates. (See Tables 24, 32 and 37). Among British troops alone, there were 470 daily sick in 1941; 1,717 in 1942; 2,066 in 1943; 674 in 1944 and 292 in 1945. Stated on a per 1,000 strength basis, these averages reduce down to 37 in 1941; 42 in 1942; 39 in 1943; 38 in 1944 and 24 in 1945 (Table 37). They indicate a falling rate of daily sickness over the period.

Infective and parasitic diseases were responsible for from 35 to 43 per cent. of all admissions from amongst the British troops and digestive diseases ranged between 10 to 15 per cent. (Table 39).

TABLE 37

Annual rates of morbidity per 1,000 strength: British Troops (all types): Persia and Iraq Force.

Diseases		(June to Dec.) 1941	1942	1943	1944	1945*
(1)	<i>Infective and Parasitic diseases</i>					
	Cerebrospinal fever ..	..	0.15	0.17	0.06	0.08
	Dengue ..	0.24	..	..	0.45	0.99
	Diphtheria ..	1.89	3.32	5.99	0.72	0.25
	Dysentery ..	45.88	56.16	28.94	62.65	47.98
	Enteric group of fevers ..	2.84	0.97	0.67	0.67	0.74
	Infective hepatitis					
	(Jaundice) ..	20.81	27.71	2.83	7.86	9.68
	Malaria ..	83.57	69.31	58.59	39.07	19.61
	Major septic diseases ..	..	..	..	..	3.64
	Minor septic diseases ..	67.49	46.55	44.46	35.17	34.50
	Mumps ..	0.08	1.41	0.61	0.39	0.16
	Oriental sore ..	..	0.61	0.13	0.11	..
	Poliomyelitis ..	..	0.10	0.15	0.17	0.08
	Sandfly fever ..	83.73	71.74	70.65	63.10	42.27
	Scabies ..	8.83	14.95	12.03	2.95	1.49
	Smallpox ..	0.31	2.43	0.84	0.61	..
	Tuberculosis ..	1.10	1.63	0.94	1.67	1.65
	Trachoma ..	0.47	0.46	0.17	..	0.16
	Typhus fever ..	1.97	0.12	0.46	0.11	0.08

TABLE 37—(Contd.)

Diseases		(June to Dec.) 1941	1942	1943	1944	1945*
	Venereal diseases ..	69.30	67.20	32.85	41.86	57.16
	Total ..	388.52	364.80	260.49	257.62	220.55
(2)	<i>Diseases of the Blood and Blood forming organs</i>					
	Nutritional and other anaemia ..	..	..	..	..	0.83
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>					
	Mental diseases ..	3.23	5.12	4.80	7.30	8.69
(4)	<i>Diseases of the Nervous system and sense organs</i>					
	ENT diseases ..	..	..	..	11.20	19.11
	Eye diseases other than trachoma ..	..	8.57	8.61	4.74	4.96
	Total ..	..	8.57	8.61	15.94	24.07
(5)	<i>Diseases of the Circulatory system</i>					
	Rheumatic fever ..	2.44	0.99	0.80	0.11	0.25
	Other circulatory diseases	..	..	..	2.28	3.06
	Total ..	2.44	0.99	0.80	2.40	3.31
(6)	<i>Diseases of the Respiratory system</i>					
	Common cold ..	9.46	9.20	9.87	9.70	6.20
	Tonsillitis ..	41.07	51.71	42.30	24.75	14.64
	Pharyngitis ..	8.83	18.49	15.88	0.06	..
	Influenza ..	5.52	0.80	1.19	0.89	0.50
	Pneumonia ..	..	..	..	..	4.88
	Other respiratory diseases	..	..	..	4.46	10.09
	Total ..	64.88	80.20	69.24	39.85	36.31
(7)	<i>Diseases of the Digestive system</i>					
	Diarrhoea ..	44.15	65.67	42.93	32.16	22.42
	Other digestive diseases	47.38	72.12	69.88	69.73	45.75
	Total ..	91.53	137.79	172.81	101.89	68.17
(8)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases ..	..	..	..	22.35	29.20
(9)	<i>Symptoms, Senility and Ill- defined conditions</i>					
	NYD fever ..	..	..	..	16.61	10.34
	PUO ..	1.97	1.14	3.40	8.03	6.37
	Total ..	1.97	1.14	3.40	24.64	16.71
(10)	<i>All other diseases</i> ..	301.32	310.95	231.63	157.34	134.02
(11)	<i>All diseases</i> ..	853.91	909.57	671.78	629.34	541.86
(12)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>					
	Burns and scalds ..	..	..	..	..	1.24

TABLE 37—(Contd.)

Diseases		(June to Dec.) 1941	1942	1943	1944	1945*
(13)	Other local injuries ..	36.58	48.92	47.59	45.82	45.00
	Total ..	36.58	48.92	47.59	45.82	46.24
	<i>Accidents, Poisoning and violence (battle injuries)</i>					
	Gunshot wounds ..	3.55	0.68	0.99	0.72	0.50
	Shell wounds ..	1.58	..	0.04	..	..
	Total ..	5.12	0.68	1.03	0.72	0.50
(14)	<i>All cases</i> ..	895.62	959.18	740.41	675.88	588.60
(15)	<i>Average daily sick</i> ..	37.06	42.18	39.52	37.55	24.13
(16)	<i>Deaths</i> ..	3.00	4.93	2.83	2.79	2.48

*1945 figures include figures for Indian officers also.

TABLE 38

Relative morbidity rates: British Troops (all types): Persia and Iraq Force.

Diseases		1941	1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>					
	Cerebrospinal fever ..	..	0.02	0.02	0.01	0.01
	Dengue ..	0.03	..	..	0.07	0.18
	Diphtheria ..	0.22	0.36	0.86	0.11	0.05
	Dysentery ..	5.37	6.17	4.18	9.95	8.85
	Enteric group of fevers ..	0.33	0.11	0.10	0.11	0.14
	Infective hepatitis (Jaundice) ..	2.44	3.05	0.41	1.25	1.79
	Malaria ..	9.79	7.62	8.47	6.21	3.62
	Major septic diseases ..	..	..	..	..	0.67
	Minor septic diseases ..	7.90	5.12	6.43	5.59	6.37
	Mumps ..	0.01	0.15	0.09	0.06	0.03
	Oriental sore ..	..	0.07	0.02	0.02	..
	Poliomyelitis ..	..	0.01	0.02	0.03	0.01
	Sandfly fever ..	9.80	7.89	10.21	10.03	7.80
	Scabies ..	1.03	1.64	1.74	0.47	0.27
	Smallpox ..	0.04	0.27	0.12	0.10	..
	Tuberculosis ..	0.13	0.18	0.13	0.27	0.30
	Trachoma ..	0.05	0.05	0.02	..	0.03
	Typhus fever ..	0.23	0.01	0.07	0.02	0.01
	Veneral diseases ..	8.12	7.39	4.75	6.65	10.55
	Total ..	45.50	40.11	37.65	40.94	40.71
(2)	<i>Diseases of the Blood and Blood forming organs</i>					
	Nutritional and other anaemia ..	..	..	..	..	0.15

TABLE 38—(Contd.)

Diseases		1941	1942	1943	1944	1945
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>					
	Mental diseases ..	0.38	0.56	0.69	1.16	1.60
(4)	<i>Diseases of the Nervous system and sense organs</i>					
	ENT diseases ..	..	..	..	1.78	3.53
	Eye diseases other than trachoma ..	..	0.94	1.24	0.75	0.92
	Total ..	..	0.94	1.24	2.53	4.44
(5)	<i>Diseases of the Circulatory system</i>					
	Rheumatic fever ..	0.29	0.11	0.12	0.02	0.05
	Other circulatory diseases ..	..	..	..	0.36	0.56
	Total ..	0.29	0.11	0.12	0.38	0.61
(6)	<i>Diseases of the Respiratory system</i>					
	Common cold ..	1.11	1.01	1.43	1.54	1.14
	Tonsillitis ..	4.81	5.69	6.11	3.93	2.70
	Pharyngitis ..	1.03	2.03	2.29	0.01	..
	Influenza ..	0.65	0.09	0.17	0.14	0.09
	Pneumonia ..	..	..	..	..	0.90
	Other respiratory diseases ..	..	..	..	0.71	1.86
	Total ..	7.60	8.82	10.01	6.33	6.70
(7)	<i>Diseases of the Digestive system</i>					
	Diarrhoea ..	5.17	7.22	6.20	5.11	4.14
	Other digestive diseases ..	5.55	7.93	10.10	11.08	8.44
	Total ..	10.72	15.15	16.31	16.19	12.58
(8)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases ..	..	..	..	3.55	5.39
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>					
	NYD fever ..	..	..	..	2.64	1.91
	PUO ..	0.23	0.12	0.49	1.27	1.18
	Total ..	0.23	0.12	0.49	3.91	3.09
(10)	<i>All other diseases</i> ..	35.29	34.19	33.48	24.99	24.73
(11)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00	100.00

Note:—1945 figures include figures for IKCOs and ICOs also.

TABLE 39

Relative casualty rates: British Troops (all types): Persia and Iraq Force.

Specialist Groups	1941	1942	1943	1944	1945
(1) Infective and parasitic diseases	43·38	38·03	35·18	38·12	37·47
(2) Diseases of the blood and blood forming organs ..	..	..	..	..	0·14
(3) Mental, psychoneurotic and personality disorders	0·36	0·53	0·65	1·08	1·48
(4) Diseases of the nervous system and sense organs ..	..	0·89	1·16	2·36	4·09
(5) Diseases of the circulatory system	0·27	0·10	0·11	0·35	0·65
(6) Diseases of the respiratory system	7·25	8·36	9·35	5·89	6·17
(7) Diseases of the digestive system	10·22	14·37	15·24	15·07	11·58
(8) Diseases of the skin and cellular tissue ..	..	..	..	3·31	4·96
(9) Symptoms, senility and ill-defined conditions ..	0·22	0·12	0·46	3·64	2·84
(10) All other diseases ..	33·64	32·42	31·28	23·29	22·76
(11) All diseases ..	95·35	94·83	93·43	93·11	92·06
(12) Non-battle injuries ..	4·08	5·10	6·43	6·78	7·86
(13) Battle injuries ..	0·57	0·07	0·14	0·11	0·08
(14) All cases	100·00	100·00	100·00	100·00	100·00

Section X

EXTENT OF SICKNESS IN PERSIA AND IRAQ

Figures of annual morbidity for all Indian and British Troops in Persia and Iraq are set out in Tables 40, 41 and 42.

Some of the causes of high incidence are reproduced below, in descending order of their rates:—

Diseases	Ranks			Ranks	
	1941	1942	1943	1944	1945
Malaria	(1)	(1)	(1)	(1)	(4)
Venereal diseases	(2)	(2)	(3)	(3)	(1)
Injuries (NEA)	(3)	(3)	(2)	(2)	(2)
Minor septic diseases	(4)	(4)	(4)	(4)	(3)
Sandfly fever	(5)	(8)	(5)	(6)	(5)
Dysentery	(6)	(7)	(9)	(5)	(6)
Common cold	(7)	(9)	(7)	(7)	(9)
Diarrhoea	(8)	(5)	(6)	(8)	(10)
Tonsillitis	(9)	(10)	(10)	(10)	(12)
Hepatitis	(10)	(12)	(13)	(11)	(11)
Heat effects	(11)	(11)	(12)	(13)	(13)
Pharyngitis	(12)	(6)	(8)	(14)	..
Eye diseases	(13)	(13)	(11)	(9)	(7)
Skin diseases .. ..	..	..	..	(12)	(8)

On comparison, it will be seen that this table agrees more closely with a similar one constructed for the VCOs and IORs. For instance the shifts in the relative positions of malaria, venereal diseases, injuries (NEA) and minor septic diseases, each year, are remarkably similar, generally. It must again be emphasised that these relative positions do not at all reflect changes in the absolute incidence of these diseases. It may, in this connection, be remembered that the overall absolute incidence of all troops kept on falling during the period and that the rate in 1945 was about one-half of that in 1941. Also, that most of the individual causes registered similar or greater falls in their respective incidence over the period. The only major exceptions were injuries (NEA), venereal diseases and pharyngitis.

On the whole, there were 44,115 hospital admissions from various causes in the ten months of 1941; 112,975 admissions in 1942; 121,417 admissions in 1943; 49,630 admissions in 1944 and 28,596 such admissions in 1945. When these figures are reduced to a basis of daily number of admissions, the respective figures are 1,516; 5,182; 5,994; 2,738 and 1,332. These are large daily mean totals in which it should be remembered, peak figures which must have been very much larger, are also hidden. To the medical authorities what is always more important is the peak figures rather than the mean ones; for by provisioning on the basis of mean figures their efforts would fail to cope with a higher peak number.

On a pro-rate basis, there were 27 admissions out of every 1,000 soldiers in 1941; 32 in 1942; 31 in 1943; 27 in 1944 and 18 in 1945. These figures indicate a generally improving state in the sickness of troops on this front.

When admissions from individual causes are considered, it can be seen from these tables that a few of them, viz., dysentery, malaria, minor septic diseases, sandfly fever, venereal diseases, common cold, diarrhoea and injuries (NEA) in themselves accounted, each year, for more than 50 per cent. of all admissions.

Some of the other diseases which assumed importance in these areas are discussed below.

Cerebrospinal fever caused 66 admissions in 1941; 131 in 1942; 33 in 1943 and 6 admissions each in 1944 and 1945. When towards the end of 1941 and in the beginning of 1942, comparatively larger cases were being reported it was thought that they were due mainly to overcrowding in tents and also to the presence of old "carriers", which remained undetectable. If this fever could have a seasonable fluctuations, winter months, when overcrowding would be more common, should show larger incidence.

Diphtheria caused 261 cases in 1941; 142 in 1942 and 346 in 1943. Later on its incidence was reduced to negligible proportions. It was said to have been accompanied by desert sores (see figures for oriental sore, scabies and skin diseases also) and was brought into Persia and Iraq by infection contacted into Palestine. Larger number of cases occurred among British troops.

Hepatitis produced large number of cases each year. The highest was 2,108 cases in 1942. It included jaundice cases. The most likely explanation of its cause was chills, in these areas. It has not been possible to disentangle cases of different types of hepatitis.

Sandfly fever often became the commonest cause of admissions, among the troops, as will be revealed by its monthly admissions. Taken annually also, admissions from it approached equality with malaria admissions in 1945. Baghdad and Tehran were the foci from where it spread around. Sandfly nets were asked to be used all over the area. Spraying was also taken resort to. These measures brought down its incidence somewhat towards the latter part of the period under consideration. It was more common among the British troops.

Scabies, smallpox, typhus and eye diseases were also responsible for quite a few admissions each year but none had assumed alarming proportions.

Incidence of heat effects is given in the table appended on page 407-408 by different categories of troops.

A marked reduction is apparent consequent on measures, like increase in salt rations, opening of heat stroke centres, provision of ice and special cool wards in medical units, etc.

From some monthly figures of such cases given in the following table, it will be seen that more cases of heat stroke and heat exhaustion

Incidence of heat effects in Persia and Iraq.

	1941		1942		1943		1944		1945	
	Actual	Rate per 1,000	Actual	Rate per 1,000	Actual	Rate per 1,000	Actual	Rate per 1,000	Actual	Rate per 1,000
<i>VCOs and IORs</i>										
Heat stroke	306	9.45	19	0.22	4	0.04	..	0.12	..	0.40
Heat exhaustion	7	0.22	230	2.67	667	6.63	..	..	..	..
<i>NCs(E)</i>										
Heat stroke	46	4.01	..	..	..	6.12	..	..	..	0.34
Heat exhaustion	11	0.96	77	2.30	226	..	..	..	..	..
<i>Indian Officers</i>										
Heat stroke	..	..	..	..	..	..	..	..	..	..
Heat exhaustion	1	4.74	3	7.50	..	..	..	..	..	..
<i>IMNS</i>										
Heat stroke	..	..	..	..	..	16.81	..	..	..	..
Heat exhaustion	..	..	3	40.00	2	..	..	..	..	..
<i>Indian Troops (All Types)</i>										
Heat stroke	352	7.98	19	0.16	4	0.03	..	0.08	..	0.38
Heat exhaustion	19	0.43	313	2.61	895	6.48	7	..	23	..
<i>BORs</i>										
Heat stroke	201	18.17	144	3.96	21	0.45	2	0.13	..	11.95
Heat exhaustion	85	7.69	1650	45.34	636	13.74	31	2.03	117	..
<i>British Officers</i>										
Heat stroke	11	6.90	10	2.45	3	0.53	2	0.78	..	..
Heat exhaustion	12	7.53	154	37.78	54	9.49	10	3.92	9	4.05
<i>M.N.S. (B.S.)</i>										
Heat stroke	..	..	..	..	..	6.45	..	..	..	..
Heat exhaustion	..	..	9	38.14	2	..	..	..	1	12.82

Incidence of heat effects in Persia and Iraq—(Contd.)

	1941		1942		1943		1944		1945	
	Actual	Rate per 1,000	Actual	Rate per 1,000	Actual	Rate per 1,000	Actual	Rate per 1,000	Actual	Rate per 1,000
<i>British Troops (All Types)</i>										
Heat stroke ..	212	16.71	154	3.74	24	0.46	4	0.22	..	..
Heat exhaustion ..	97	7.65	1813	44.00	692	13.24	41	2.28	127	10.51
<i>Indian and British Troops (All Types)</i>										
Heat stroke ..	564	9.93	173	1.08	28	0.15	4	0.04	..	..
Heat exhaustion ..	116	2.04	2126	13.23	1587	8.33	48	0.47	150	2.08

occurred among the British troops but more deaths were reported from among the Indians:—

	June 1942		July 1942	
	<i>B.T.</i>	<i>I.T.</i>	<i>B.T.</i>	<i>I.T.</i>
Heat stroke	23	3	62	..
Heat exhaustion	137	13	243	17
Deaths	15	6	7	2

It will be seen that case fatality among the Indians is very much higher. It has also been stated by the hygienist in this area that more than half of the cases of heat effects occurred at docks, during disembarkation or shortly after arrival at transit camps among the fresh troops. Of these 60 per cent. of the cases were among young men between the ages of 20 and 30. If figures were available the correlation of age to different diseases morbidity and wastage would certainly make a valuable study.

TABLE 40

Admissions to Hospitals—Annual rates per 1,000 strength: Indian and British Troops (all types): Persia and Iraq Force.

Diseases	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Cerebrospinal fever ..	1.16	0.81	0.17	0.06	0.08
Cholera .. ..	..	..	..	..	0.05
Dengue	0.60	0.01	0.01	0.12	0.37
Diphtheria	4.60	0.88	1.82	0.15	0.14
Dysentery	33.16	28.22	19.03	27.30	16.96
Enteric group of fevers ..	3.73	0.37	0.38	0.31	0.30
Infective hepatitis (Jaundice) ..	12.33	13.12	2.50	7.40	7.34
Malaria	109.88	83.89	89.70	49.04	25.39
Major septic diseases ..	..	..	..	..	1.32
Minor septic diseases ..	45.39	33.81	40.06	27.83	31.09
Mumps	2.29	2.02	4.97	2.28	1.23
Oriental sore	1.21	1.19	0.26	0.39	0.71
Plague	0.03	..	..	..	0.01
Poliomyelitis	0.05	0.02	0.05	0.04	0.01
Sandfly fever	37.85	27.94	30.13	22.44	22.03
Scabies	4.26	7.20	6.49	3.95	2.66
Smallpox	0.35	1.29	0.72	0.53	0.03
Tuberculosis	1.83	1.89	1.84	2.40	1.48
Trachoma	1.36	2.17	2.25	1.57	0.68
Typhus fever	1.06	0.08	0.59	0.03	0.01
Venereal diseases ..	70.50	62.00	41.52	38.47	42.56
Total	334.64	266.93	242.59	184.30	154.47

TABLE 40—(Contd.)

Diseases		1941	1942	1943	1944	1945
(2)	<i>Diseases of the Blood and Blood forming organs</i>					
	Nutritional and other anaemia .. ..	..	..	..	..	1.69
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>					
	Mental diseases ..	3.35	4.20	3.80	4.16	3.53
(4)	<i>Diseases of the Nervous system and sense organs</i>					
	ENT diseases ..	..	..	..	4.05	7.54
	Eye diseases other than trachoma	2.55	12.06	12.35	7.99	6.75
	Total	2.55	12.06	12.35	12.03	14.28
(5)	<i>Diseases of the Circulatory system</i>					
	Rheumatic fever ..	4.12	0.47	0.40	0.03	0.14
	Other circulatory diseases ..	..	..	..	1.04	1.26
	Total	4.12	0.47	0.40	1.07	1.40
(6)	<i>Diseases of the Respiratory system</i>					
	Common cold ..	32.02	23.80	21.55	14.59	9.16
	Tonsillitis	13.31	18.21	17.74	9.05	5.11
	Pharyngitis	9.65	29.89	19.21	0.42	..
	Influenza	4.72	0.34	0.43	0.54	1.30
	Pneumonia .. ..	..	..	..	..	2.55
	Other respiratory diseases ..	..	..	..	2.70	9.25
	Total	59.70	72.24	58.93	27.30	27.38
(7)	<i>Diseases of the Digestive system</i>					
	Diarrhoea	24.45	31.38	24.41	13.17	8.89
	Other digestive diseases ..	32.27	47.43	56.75	44.35	34.26
	Total	56.71	78.81	81.15	57.52	43.15
(8)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases .. ..	..	..	..	6.42	10.32
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>					
	NYD fever .. ..	..	..	..	12.08	9.46
	PUO	3.56	1.02	4.55	7.47	4.71
	Total	3.56	1.02	4.55	19.55	14.17
(10)	<i>All other diseases</i>	258.89	222.79	186.91	127.68	88.54
(11)	<i>All diseases</i>	723.54	658.53	599.69	440.03	358.94
(12)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>					
	Burns and scalds .. ..	..	..	..	..	1.87
	Other local injuries ..	49.01	44.07	46.00	40.94	34.61
	Total	49.01	44.07	46.00	40.94	36.48
(13)	<i>Accidents, Poisoning and violence (battle injuries)</i>					
	Injuries caused by blast ..	..	..	..	..	0.05

TABLE 40—(Contd.)

Diseases		1941	1942	1943	1944	1945
	Bomb wounds ..	..	0·02	..	..	..
	Gunshot wounds ..	3·68	0·63	0·94	0·74	0·69
	Shell wounds ..	0·72	0·01	0·05	..	..
	Total ..	4·40	0·66	0·99	0·74	0·75
(14)	All cases ..	776·95	703·27	637·68	481·71	396·17
(15)	Average daily sick ..	26·70	32·26	31·48	26·57	18·46
(16)	Deaths ..	2·64	3·45	2·46	2·54	2·22

TABLE 41

Relative morbidity rates: Indian and British troops (all types): Persia and Iraq force.

Diseases		1941	1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>					
	Cerebrospinal fever ..	0·16	0·12	0·03	0·01	0·02
	Cholera ..	..	..	..	..	0·01
	Dengue ..	0·08	0·00	0·00	0·03	0·10
	Diphtheria ..	0·63	0·13	0·31	0·03	0·04
	Dysentery ..	4·58	4·28	3·22	6·20	4·72
	Enteric group of fevers	0·52	0·06	0·06	0·07	0·08
	Infective hepatitis					
	(Jaundice) ..	1·70	2·00	0·42	1·68	2·05
	Malaria ..	15·19	12·74	15·19	11·14	7·07
	Major septic diseases ..	..	..	..	..	0·37
	Minor septic diseases ..	6·27	5·13	6·78	6·32	8·66
	Mumps ..	0·32	0·31	0·84	0·52	0·34
	Oriental sore ..	0·17	0·18	0·04	0·09	0·20
	Plague ..	0·00	..	..	..	0·00
	Poliomyelitis ..	0·01	0·00	0·01	0·01	0·00
	Sandfly fever ..	5·23	4·24	5·10	5·10	6·14
	Scabies ..	1·00	1·09	1·10	0·90	0·74
	Smallpox ..	0·05	0·20	0·12	0·12	0·01
	Tuberculosis ..	0·25	0·29	0·31	0·54	0·41
	Trachoma ..	0·19	0·33	0·38	0·36	0·19
	Typhus fever ..	0·15	0·01	0·10	0·01	0·00
	Veneral diseases ..	9·74	9·41	7·03	8·74	11·86
	Total ..	46·26	40·54	41·06	41·89	43·04
(2)	<i>Diseases of the Blood and Blood forming organs</i>					
	Nutritional and other anaemia ..	..	..	..	..	0·47
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>					
	Mental diseases ..	0·46	0·64	0·64	0·95	0·98

TABLE 41—(Contd.)

Diseases		1941	1942	1943	1944	1945
(4)	<i>Diseases of the Nervous system and sense organs</i>					
	ENT diseases ..	..	..	..	0.92	2.10
	Eye diseases other than trachoma ..	0.35	1.83	2.09	1.81	1.88
	Total ..	0.35	1.83	2.09	2.73	3.98
(5)	<i>Diseases of the Circulatory system</i>					
	Rheumatic fever ..	0.57	0.07	0.07	0.01	0.04
	Other circulatory diseases ..	..	..	..	0.24	0.35
	Total ..	0.57	0.07	0.07	0.25	0.39
(6)	<i>Diseases of the Respiratory system</i>					
	Common cold ..	4.42	3.61	3.66	3.31	2.55
	Tonsillitis ..	1.84	2.77	3.00	2.06	1.42
	Pharyngitis ..	1.33	4.54	3.25	0.09	..
	Influenza ..	0.65	0.05	0.07	0.12	0.36
	Pneumonia ..	..	..	..	..	0.71
	Other respiratory diseases ..	..	..	..	0.61	2.58
	Total ..	8.25	10.97	19.98	6.20	7.62
(7)	<i>Diseases of the Digestive system</i>					
	Diarrhoea ..	3.38	4.76	4.13	2.99	2.48
	Other digestive diseases ..	4.46	7.20	9.61	10.08	9.54
	Total ..	7.84	11.97	13.74	13.07	12.02
(8)	<i>Diseases of the Skin and Cellular tissues</i>					
	Skin diseases ..	..	..	..	1.46	2.87
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>					
	NYD fever ..	..	..	..	2.74	2.64
	PUO ..	0.49	0.15	0.77	1.70	1.31
	Total ..	0.49	0.15	0.77	4.44	3.95
(10)	<i>All other diseases</i> ..	35.78	33.83	31.64	29.02	24.67
(11)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00	100.00

TABLE 42

Relative casualty rates: Indian and British Troops: Persia and Iraq Force.

Specialist Groups	1941	1942	1943	1944	1945
(1) Infective and parasitic diseases	43·71	37·95	38·03	38·26	38·99
(2) Diseases of the blood and blood forming organs ..	..	..	..	..	0·43
(3) Mental, psychoneurotic and personality disorders	0·43	0·60	0·59	0·86	0·89
(4) Diseases of the nervous system and sense organs ..	0·33	1·71	1·94	2·50	3·60
(5) Diseases of the circulatory system	0·53	0·07	0·06	0·22	0·35
(6) Diseases of the respiratory system	7·04	10·28	9·25	5·67	6·91
(7) Diseases of the digestive system	7·30	11·20	12·73	11·94	10·89
(8) Diseases of the skin and cellular tissues ..	..	..	..	1·33	2·60
(9) Symptoms, senility and ill-defined conditions ..	0·46	0·14	0·71	4·06	3·57
(10) All other diseases ..	33·32	31·68	29·31	26·50	22·35
(11) All diseases ..	93·12	93·64	92·63	91·35	90·60
(12) Non-battle injuries ..	6·31	6·27	7·21	8·50	9·21
(13) Battle injuries ..	0·57	0·09	0·16	0·15	0·19
(14) All cases	100·00	100·00	100·00	100·00	100·00

Section XI

MORTALITY IN PERSIA AND IRAQ

The table on page 415 illustrates number and rate per 1,000 of deaths occurred among various categories of troops in Persia and Iraq.

In all there were 150 deaths in 1941; 555 in 1942; 469 in 1943; 262 in 1944 and 160 in 1945. The relevant mortality rates per 1,000 strength were 2·64 in 1941; 3·45 in 1942; 2·46 in 1943; 2·54 in 1944 and 2·22 in 1945. These figures show that the mortality rate was never less than 0·2 per cent. nor more than 0·3 per cent. A comparison of mortality among Indian and British troops in the above table shows that the latter exhibited higher mortality than the former each year. Among Indian troops themselves, VCOs and IORs had consistently higher mortality rates than all of them combined, which was not the case with the BORs amongst the British troops, except in 1942.

Figures of mortality by specific causes are not available. Evaluation of fatality rates and the comparative value of various causes from this view point is not possible. Since there was very little fighting on this front, separation of enemy-action and non-enemy-action mortality would be of no special avail, even for the crudest estimates.

Within each year, another way of looking at the figures of the table given on Page 415 is that about 75 per cent. of all deaths took place among the Indian troops in 1941; 53 per cent. in 1942; 66 per cent. in 1943 and 81 per cent. each in 1944 and 1945. The rest of them took place in British troops. Again, 83 per cent. of the Indian deaths occurred among the VCOs and IORs in 1941; 77 per cent. in 1942; 76 per cent. in 1943; 83 per cent. in 1944 and 82 per cent. in 1945. Similar was the case with the British troops, among whom BORs accounted each year for about 80 per cent. of their deaths till 1943; for 74 per cent. in 1944 and 64 per cent. in 1945.

Deaths among Indian and British Troops in Persia and Iraq.

Categories of troops	1941		1942		1943		1944		1945	
	Actual	Rate per 1,000	Actual	Rate Per 1,000	Actual	Rate per 1,000	Actual	Rate per 1,000	Actual	Rate per 1,000
VCOs and IORs ..	93	2.87	271	3.15	245	2.44	177	2.93	107	2.36
NCs(E) ..	19	1.66	80	2.39	76	2.06	33	1.38	23	1.57
Indian Officers ..	..	..	1	2.50	..	..	2	3.04	..	..
IMNS ..	..	..	..	..	..	..	..	..	..	..
Indian troops (all types)	112	2.54	352	2.93	321	2.32	212	2.49	130	2.16
BORs ..	30	2.71	180	4.95	115	2.48	37	2.42	19	1.94
BOs(IS) ..	1	1.49	7	4.16	5	2.98	5	5.99	5	4.26
BOS (BS) ..	7	7.59	15	6.27	18	4.49	6	3.49	5	4.77
MNS (BS) ..	..	..	1	4.24	10	32.26	2	17.54	1	12.82
British troops (all types)	38	3.00	203	4.93	148	2.83	50	2.79	30	2.48
Indian and British troops (all types) ..	150	2.64	555	3.45	469	2.46	262	2.54	160	2.22

CHAPTER VI

Section I

Middle East and Neighbouring Areas

ADEN AND SCOTRA

This was a garrison station on the southern entrance to the Red Sea. From the point of actual warfare no fighting ever took place within its jurisdiction. Another important factor to bear in mind is about the strength of troops stationed here which never exceeded 3,500.

Tables 1 to 10 indicate the history of the sickness for individual category of troops from 1940 to 1945. In this Section, however, attention will largely be concentrated on the Table 6 pertaining to Indian troops (all types), which incidentally sets the general pattern for the variations in the fortunes of each disease from year to year even for the individual categories of troops.

In Table 6 it will be seen that of the diseases having comparatively higher incidence, malaria, dysentery and minor septic diseases do not show any regular trend. Dysentery was reported at its peak in 1940 with irregular fluctuations in the remaining years; the rates from malaria and minor septic diseases were highest in 1942. Scabies was reported 50 per 1,000 in 1940 and at a very much subdued rates thereafter. Similar was the case with respiratory diseases and diarrhoea. Venereal diseases and digestive diseases increased throughout whereas scabies, common cold and pharyngitis registered diminishing rates from year to year.

The death rate was highest at 4 per 1,000 in 1944, but the average constantly sick rate per 1,000 was greatest in 1942 being 51.

TABLE 1

*Admissions to Hospitals—Annual rates per 1,000 strength: VCOs and IORs:
Aden and Scotra.*

Diseases	1940	1941	1942	1943	1944	1945
(1) <i>Diseases</i>						
Cerebrospinal fever ..	1.17	..	1.45	..	0.61	6.29
Dysentery ..	55.82	26.38	11.63	14.07	20.29	18.87
Enteric group of fevers ..	0.59	0.88	..	..	..	..
Infective hepatitis (Jaundice) ..	6.46	3.96	0.97	2.68	4.91	11.79
Malaria ..	17.63	86.63	132.75	37.88	41.82	47.96
Major septic diseases ..	..	..	..	..	..	1.57
Minor septic diseases ..	27.61	28.14	57.65	23.80	35.67	14.15
Mumps ..	3.52	4.84	14.53	1.01	1.84	..
Oriental sore ..	..	0.44	..	..	..	..
Scabies ..	52.88	16.27	4.36	4.36	3.07	9.43
Smallpox ..	..	..	0.48	..	..	..
Tuberculosis ..	5.87	7.04	7.75	3.69	3.69	6.29
Venereal diseases ..	19.39	20.67	23.74	33.52	46.74	58.18
Trachoma ..	0.59	..	3.39	7.04	7.38	7.07
Eye diseases other than trachoma ..	..	17.59	15.99	18.10	31.98	11.79

TABLE 1—(Contd.)

Diseases	1940	1941	1942	1943	1944	1945
Mental diseases ..	0.59	0.88	0.97	1.01	..	4.72
Common cold ..	20.56	15.83	37.79	14.41	18.45	12.58
Tonsillitis ..	17.63	9.23	9.21	5.36	7.99	21.23
Pharyngitis ..	33.49	17.15	25.19	19.11	25.21	..
Influenza ..	1.76	..	..	..	2.46	..
Pneumonia ..	9.40	..	..	..	..	3.14
Other respiratory diseases ..	73.44	23.75	..	2.68	..	25.16
Diarrhoea ..	48.77	8.79	8.24	8.38	12.91	17.29
Other digestive diseases ..	48.18	24.63	34.40	21.12	55.35	68.40
NYD fever ..	..	..	..	..	..	15.72
PUO ..	..	..	..	0.33	12.30	..
All other diseases ..	176.85	174.14	227.71	181.70	216.48	139.14
All diseases ..	622.20	487.24	618.22	400.27	549.20	500.78
(2) <i>Accidents, Poisoning and violence</i> <i>(Non-battle injuries)</i>						
Burns and scalds ..	..	..	..	..	..	3.93
Other local injuries ..	42.89	68.16	82.85	43.58	51.04	54.24
Total ..	42.89	68.16	82.85	43.58	51.04	58.18
(3) <i>Accidents, Poisoning and violence</i> <i>(battle injuries)</i>						
Gunshot wounds ..	..	0.44	0.48	1.01	0.61	..
Shell wounds ..	..	..	..	4.69	..	..
Total ..	..	0.44	0.48	5.70	0.61	..
(4) <i>All cases</i> ..	665.10	555.85	701.55	449.55	600.86	558.96
(5) <i>Average daily sick</i> ..	31.30	39.78	50.68	29.57	34.37	37.44
(6) <i>Deaths</i> ..	1.17	2.20	2.42	1.34	4.92	2.36

TABLE 2

Relative morbidity rates: VCOs and IORs: Aden and Scotra.

Diseases	1940	1941	1942	1943	1944	1945
Cerebrospinal fever ..	0.19	..	0.23	..	0.11	1.26
Dysentery ..	8.97	5.41	1.88	3.52	3.69	3.77
Enteric group of fevers ..	0.09	0.18	..	..	..	..
Infective hepatitis (Jaundice) ..	1.04	0.81	0.16	0.67	0.89	2.36
Malaria ..	2.83	17.78	21.47	9.46	7.61	9.58
Major septic diseases ..	..	..	..	..	..	0.31
Minor septic diseases ..	4.44	5.78	9.33	5.95	6.49	2.83
Mumps ..	0.57	0.99	2.35	0.25	0.34	..
Oriental sore ..	..	0.09	..	..	..	..
Scabies ..	8.50	3.34	0.70	1.09	0.56	1.88
Smallpox ..	..	..	0.08	..	..	..
Tuberculosis ..	0.94	1.44	1.25	0.92	0.67	1.26
Veneral diseases ..	3.12	4.24	3.84	8.37	8.51	11.62
Trachoma ..	0.09	..	0.55	1.76	1.34	1.41
Eye diseases other than trachoma ..	..	3.61	2.59	4.52	5.82	2.35
Mental diseases ..	0.09	0.18	0.16	0.25	..	0.94
Common cold ..	3.30	3.25	6.11	3.60	3.36	2.51
Tonsillitis ..	2.83	1.89	1.49	1.34	1.46	4.24
Pharyngitis ..	5.38	3.52	4.07	4.77	4.59	..
Influenza ..	0.28	..	..	..	0.45	..
Pneumonia ..	1.51	..	..	..	..	0.63
Other respiratory diseases ..	11.80	4.87	..	0.67	..	5.02
Diarrhoea ..	7.84	1.80	1.33	2.09	2.35	3.45
Other digestive diseases ..	7.74	5.05	5.56	5.28	10.08	13.66
NYD fever ..	..	..	..	..	..	3.14
PUO ..	..	..	..	0.08	2.24	..
All other diseases ..	28.42	35.74	36.83	45.99	39.42	27.79
All diseases ..	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 3.

Admissions to Hospitals—Annual rates per 1,000 strength: NCs(E): Aden and Scotra.

Diseases	1940	1941	1942	1943	1944	1945
(1) <i>Diseases</i>						
Dysentery ..	52.88	15.42	15.83	12.68	50.98	66.67
Enteric group of fevers ..	4.81	..	2.64	..	..	..
Infective hepatitis (Jaundice) ..	4.81	6.61	..	6.34	..	16.67
Malaria ..	52.88	59.47	73.88	25.37	54.90	66.67
Minor septic diseases ..	33.65	48.46	55.41	46.51	78.43	72.22
Mumps ..	4.81	4.40	15.83	2.11	23.53	..
Oriental sore ..	4.81	..	..	..	..	..
Scabies ..	24.04	11.01	10.55	6.34	27.45	50.00
Tuberculosis ..	28.85	4.40	2.64	2.11	..	11.11
Venereal diseases ..	96.15	74.89	79.16	67.65	113.73	255.56
Trachoma ..	..	..	..	4.23	3.92	5.56
Eye diseases other than trachoma ..	..	17.62	29.02	27.48	70.59	38.89
Mental diseases ..	24.04	..	..	..	3.92	..
Common cold ..	43.27	24.23	42.22	31.71	19.61	11.11
Tonsillitis ..	24.04	17.62	13.19	12.68	3.92	38.89
Pharyngitis ..	52.88	41.85	..	29.60	..	..
Pneumonia ..	9.61	4.40	..	..	..	5.56
Other respiratory diseases ..	110.58	90.31	42.22	..	19.61	50.00
Diarrhoea ..	33.65	13.22	2.64	16.91	19.61	38.89
Other digestive diseases ..	33.65	19.82	44.85	50.74	113.73	88.89
NYD fever ..	..	..	..	..	..	66.67
PUO ..	..	..	..	..	7.84	11.11
All other diseases ..	293.27	242.29	335.09	186.04	439.22	294.45
All diseases ..	932.69	696.02	765.17	528.54	1050.99	1188.90
(2) <i>Accidents, Poisoning and violence</i> <i>(non-battle injuries)</i>						
Burns and scalds ..	..	..	..	..	..	11.11
Other local injuries ..	48.08	88.10	71.24	42.28	47.06	88.89
Total ..	48.08	88.10	71.24	42.28	47.06	100.00
(3) <i>All cases</i> ..	980.77	784.13	836.41	570.82	1098.05	1288.90
(4) <i>Average daily sick</i> ..	N.A.	62.80	56.44	39.64	56.35	79.83
(5) <i>Deaths</i> ..	..	2.20	2.64	..	..	..

TABLE 4

Relative morbidity rates: NCs(E): Aden and Scotra.

Diseases	1940	1941	1942	1943	1944	1945
Dysentery ..	5.67	2.21	2.07	2.40	4.85	5.61
Enteric group of fevers ..	0.51	..	0.34	..	..	..
Infective (Jaundice) ..	0.51	0.95	..	1.20	..	1.40
Malaria ..	5.67	8.54	9.65	4.80	5.22	5.61
Minor septic diseases ..	3.61	6.96	7.24	8.80	7.46	6.07
Mumps ..	0.51	0.63	2.07	0.40	2.24	..
Oriental sore ..	0.51	..	..	..	..	..
Scabies ..	2.58	1.58	1.38	1.20	2.61	4.21
Tuberculosis ..	3.09	0.63	0.34	0.40	..	0.93
Venereal diseases ..	10.31	10.76	10.34	12.80	10.82	21.49
Trachoma ..	..	..	..	0.80	0.37	0.47
Eye diseases other than trachoma ..	..	2.53	3.79	5.20	6.72	3.27
Mental diseases ..	2.58	..	..	..	0.37	..
Common cold ..	4.64	3.48	5.52	6.00	1.87	0.93
Tonsillitis ..	2.58	2.53	1.72	2.40	0.37	3.27
Pharyngitis ..	5.67	6.01	..	5.60	..	..
Pneumonia ..	1.03	0.63	..	..	..	0.47
Other respiratory diseases ..	11.86	12.97	5.52	..	1.87	4.21
Diarrhoea ..	3.61	1.90	0.34	3.20	1.87	3.27
Other digestive diseases ..	3.61	2.85	5.86	9.60	10.82	7.48
NYD fever ..	..	..	..	..	..	5.61
PUO ..	..	..	..	..	0.75	0.93
All other diseases ..	31.44	34.81	43.79	35.20	41.79	24.77
All diseases ..	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 5
Absolute and relative morbidity rates: Indian Officers: Aden and Socotra.

[illegible]

TABLE 6

Admissions to Hospitals—Annual rates per 1,000 strength: Indian Troops (all types): Aden and Socatra.

Diseases	1940	1941	1942	1943	1944	1945
(1) <i>Diseases</i>						
Cerebrospinal fever ..	1.04	..	1.22	..	0.52	5.51
Dysentery ..	55.35	24.51	12.20	13.76	24.05	24.79
Enteric group of fevers ..	1.04	0.73	0.41	..	..	..
Infective hepatitis (Jaundice) ..	6.27	4.39	0.81	3.15	4.18	12.39
Malaria ..	21.41	81.93	122.81	35.83	42.86	50.27
Major septic diseases ..	..	..	..	..	..	1.38
Minor septic diseases ..	28.20	31.46	56.93	26.65	40.77	21.35
Mumps ..	3.65	4.75	14.64	1.15	4.70	..
Oriental sore ..	0.52	0.37	..	..	..	..
Scabies ..	49.61	15.36	5.29	4.87	6.27	14.46
Smallpox ..	..	..	0.41	..	..	..
Tuberculosis ..	8.35	6.58	6.91	3.44	3.14	6.89
Veneral diseases ..	27.68	27.07	32.13	37.83	54.89	82.64
Trachoma ..	0.52	..	2.85	6.59	6.80	6.89
Eye diseases other than trachoma ..	..	17.56	17.89	19.20	36.59	15.15
Mental diseases ..	3.13	0.73	0.81	0.86	0.52	4.13
Common cold ..	22.98	17.19	38.23	16.62	18.30	12.40
Tonsillitis ..	18.28	10.61	9.76	6.31	7.32	23.42
Pharyngitis ..	35.51	21.21	21.15	20.35	21.43	..
Influenza ..	1.57	..	..	..	2.09	..
Pneumonia ..	9.40	0.73	..	..	..	3.44
Other respiratory diseases ..	77.28	34.75	6.51	2.29	2.61	28.24
Diarrhoea ..	47.00	9.51	7.32	9.46	13.59	19.97
Other digestive diseases ..	46.47	23.77	36.19	25.22	62.21	70.94
NYD fever ..	..	..	..	..	..	22.04
PUO ..	..	..	..	0.29	11.50	1.38
All other diseases ..	189.03	188.00	244.41	180.85	242.55	158.40
All diseases ..	654.31	521.21	638.88	414.73	606.90	586.09
(2) <i>Accidents, Poisoning and violence</i> <i>(non-battle injuries)</i>						
Burns and scalds ..	..	..	..	..	..	4.82
Other local injuries ..	43.34	71.32	80.52	42.99	49.66	58.54
Total ..	43.44	71.32	80.52	42.99	49.66	63.36
(3) <i>Accidents Poisoning and violence</i> <i>(battle injuries)</i>						
Gunshot wounds ..	..	0.37	0.41	0.86	0.52	..
Shell wounds ..	..	..	..	4.01	..	..
Total ..	..	0.37	0.41	4.87	0.52	..
(4) <i>All cases</i> ..	697.65	592.90	719.80	462.60	657.08	649.45
(5) <i>Average daily sick</i> ..	27.62	43.53	51.36	30.67	37.07	42.70
(6) <i>Deaths</i> ..	1.04	2.19	2.44	1.15	4.18	2.07

TABLE 7

Relative morbidity rates: Indian Troops (all types): Aden and Socatra.

Diseases	1940	1941	1942	1943	1944	1945
Cerebrospinal fever	0.16	..	0.19	..	0.09	0.94
Dysentery	8.46	4.70	1.91	3.32	3.96	4.23
Enteric group of fevers	0.16	0.14	0.06	..	..	..
Infective hepatitis (Jaundice)	0.96	0.84	0.13	0.76	0.69	2.12
Malaria	3.27	15.72	19.22	8.64	7.06	8.58
Major septic diseases .. ..	..	..	..	..	..	0.23
Minor septic diseases	4.31	6.03	8.91	6.43	6.72	3.64
Mumps	0.56	0.91	2.29	0.28	0.77	..
Oriental sore	0.08	0.07	..	..	..	..
Scabies	7.58	2.95	0.83	1.17	1.03	2.47
Smallpox .. ..	..	..	0.06	..	..	..
Tuberculosis	1.28	1.26	1.08	0.83	0.52	1.17
Venereal diseases	4.23	5.19	5.03	9.12	9.04	14.10
Trachoma	0.08	..	0.45	1.59	1.12	1.17
Eye diseases other than trachoma .. ..	..	3.37	2.80	4.63	6.03	2.58
Mental diseases	0.48	0.14	0.13	0.21	0.09	0.70
Common cold	3.51	3.30	5.98	4.01	3.01	2.11
Tonsillitis	2.79	2.03	1.53	1.52	1.21	3.99
Pharyngitis	5.43	4.07	3.31	4.91	3.53	..
Influenza	0.24	..	..	..	0.34	..
Pneumonia	1.44	0.14	..	..	..	0.59
Other respiratory diseases	11.81	6.67	1.02	0.55	0.43	4.82
Diarrhoea	7.18	1.82	1.15	2.28	2.24	3.41
Other digestive diseases	7.10	4.56	5.66	6.08	10.25	12.10
NYD fever .. ..	..	..	..	..	..	3.76
PUO .. ..	..	..	..	0.07	1.89	0.23
All other diseases	28.89	36.07	38.26	143.61	39.97	27.03
All diseases	100.00	100.00	100.00	00.00	100.00	100.00

TABLE 9.

Admissions to Hospitals—Annual rates per 1,000 strength: Indian and British Troops: Aden and Scotra.

Diseases	1940	1941	1942	1943	1944	1945
(1) <i>Diseases</i>						
Cerebrospinal fever	1.03	..	1.20	..	0.52	5.47
Dysentery	54.64	24.83	12.04	13.62	23.93	24.62
Enteric group of fevers	1.03	0.72	0.40	..	..	..
Infective hepatitis (Jaundice) ..	6.70	4.32	0.80	3.12	4.16	12.31
Malaria	21.13	81.68	122.04	36.04	42.66	49.93
Major septic diseases .. ..	..	..	..	..	..	1.37
Minor septic diseases	28.35	30.95	56.20	27.24	40.58	21.20
Mumps	3.61	4.68	14.45	1.13	4.68	..
Oriental sore	0.51	0.36	..	..	..	..
Scabies	48.97	15.11	5.21	4.82	6.24	14.36
Smallpox .. ..	..	..	0.40	..	..	..
Tuberculosis	8.25	6.48	6.82	3.40	3.12	6.84
Venereal diseases	27.32	26.63	31.71	37.74	54.63	83.45
Trachoma	0.51	..	2.81	6.53	6.76	6.84
Eye diseases other than trachoma ..	..	17.27	17.66	19.30	36.42	15.05
Mental diseases	3.09	0.72	0.80	0.85	0.52	4.10
Common cold	22.68	16.91	37.74	17.03	18.21	12.31
Tonsillitis	18.04	11.16	9.63	6.24	7.28	23.25
Pharyngitis	35.05	20.87	21.68	20.15	21.33	..
Influenza	1.55	..	..	..	2.08	..
Pneumonia	9.28	0.72	..	..	..	3.42
Other respiratory diseases	76.29	34.18	6.42	2.27	2.60	28.04
Diarrhoea	46.39	9.36	7.63	9.36	13.53	19.83
Other digestive diseases	46.39	23.75	36.93	24.97	61.91	70.45
NYD fever .. ..	..	..	..	..	..	21.89
PUO .. ..	..	..	..	0.28	11.44	1.37
All other diseases	187.63	186.76	242.47	180.76	241.41	157.32
All diseases	648.45	517.45	635.09	414.87	604.06	583.45
(2) <i>Accidents, Poisoning and violence (non-battle injuries)</i>						
Burns and scalds .. ..	..	..	..	..	..	4.79
Other local injuries	42.78	70.17	79.89	42.85	49.95	58.14
Total	42.78	70.17	79.89	42.85	49.95	62.93
(3) <i>Accidents, Poisoning and violence (battle injuries)</i>						
Gunshot wounds .. ..	..	0.36	0.40	0.85	0.52	..
Shell wounds .. ..	..	..	..	3.97	..	..
Total .. ..	..	0.36	0.40	4.82	0.52	..
(4) <i>All cases</i>	691.23	587.98	715.37	462.54	654.52	646.37
(5) <i>Average daily sick</i>	27.26	43.07	50.94	30.68	36.92	42.41
(6) <i>Deaths</i>	1.03	2.16	2.41	1.13	4.16	2.05

TABLE 10

Relative morbidity rates: Indian and British Troops: Aden and Scotra.

Diseases	1940	1941	1942	1943	1944	1945
Cerebrospinal fever	0.16	..	0.19	..	0.09	0.94
Dysentery	8.43	4.80	1.90	3.28	3.96	4.22
Enteric group of fevers	0.16	0.14	0.06	..	..	..
Infective hepatitis (Jaundice) ..	1.03	0.83	0.13	0.75	0.69	2.11
Malaria	3.26	15.79	19.22	8.69	7.06	8.56
Major septic diseases .. ..	..	..	..	..	..	0.23
Minor septic diseases	4.37	5.98	8.85	6.57	6.72	3.63
Mumps	0.56	0.90	2.28	0.27	0.77	..
Oriental sore	0.08	0.07	..	..	..	..
Scabies	7.55	2.92	0.82	1.16	1.03	2.46
Smallpox .. ..	..	..	0.06	..	..	..

TABLE 10—(Contd.)

Diseases	1940	1941	1942	1943	1944	1945
Tuberculosis	1.27	1.25	1.07	0.82	0.52	1.17
Venereal diseases	4.21	5.15	4.99	9.10	9.04	14.30
Trachoma	0.08	..	0.44	1.57	1.12	1.17
Eye diseases other than trachoma .. ..	..	3.34	2.78	4.65	6.03	2.58
Mental diseases	0.48	0.14	0.13	0.20	0.09	0.70
Common cold	3.50	3.27	5.94	4.10	3.01	2.11
Tonsillitis	2.78	2.16	1.52	1.50	1.21	3.99
Pharyngitis	5.40	4.03	3.41	4.86	3.53	..
Influenza	0.24	..	..	..	0.34	..
Pneumonia	1.43	0.14	..	..	..	0.59
Other respiratory diseases	11.76	6.61	1.01	0.55	0.43	4.81
Diarrhoea	7.15	1.81	1.20	2.26	2.24	3.40
Other digestive diseases	7.15	4.59	5.81	6.02	10.25	12.07
NYD fever .. ..	..	..	..	..	..	3.75
PUO .. ..	..	..	..	0.07	1.89	0.23
All other diseases	28.93	36.09	38.18	43.57	39.96	26.90
All diseases.. ..	100.00	100.00	100.00	100.00	100.00	100.00

Section II

SCYCHELLES ISLAND

A garrison of Indian troops not exceeding about 300 was kept in the Scycheles island of the coast of East Africa. No battle was ever fought on this island. The figures given in Tables 11 and 12 pertain to the sickness only.

TABLE 11

Absolute and relative morbidity rates: VCOs and IORs: Scycheles.

Diseases	1941			1942		
	Actual	Relative Rate	Rate per 1,000	Actual	Relative Rate	Rate per 1,000
(1) <i>Infective and Parasitic diseases</i>						
Dysentery .. ..	..	..	..	2	2.60	7.60
Infective hepatitis (Jaundice) ..	..	..	..	3	3.90	11.41
Malaria .. ..	..	..	..	2	2.60	7.60
Major septic diseases .. ..	..	..	..	2	2.60	7.60
Tuberculosis .. ..	..	..	..	1	1.30	3.80
Veneral diseases	3	15.00	11.67	5	6.49	19.01
Total	3	15.00	11.67	15	19.48	57.03
(2) <i>Diseases of the Nervous system and sense organs</i>						
ENT diseases .. ..	..	..	..	5	6.49	19.01
Eye diseases other than trachoma ..	1	5.00	3.89	3	3.90	11.41
Total	1	5.00	3.89	8	10.39	30.42
(3) <i>Diseases of the Respiratory system</i>						
Tonsillitis	1	5.00	3.89	2	2.60	7.60
Influenza .. ..	..	..	..	2	2.60	7.60
Pneumonia .. ..	..	..	..	4	5.19	15.21
Other respiratory diseases .. ..	..	..	..	30	38.96	114.07
Total	1	5.00	3.89	38	49.35	114.49
(4) <i>Diseases of the Digestive system</i>						
Other digestive diseases	1	5.00	3.89	5	6.49	19.01
(5) <i>All other diseases</i>	14	70.00	54.47	11	14.29	41.82
(6) <i>All diseases</i>	20	100.00	77.82	77	100.00	292.78
(7) <i>Accidents, Poisoning and violence (non-battle injuries)</i>						
Local injuries .. ..	..	..	..	3	..	11.41
(8) <i>All cases</i>	20	..	77.82	80	..	304.18
(9) <i>Average daily sick</i>	8.19	..	31.87	10.98	..	41.75
(10) <i>Deaths</i> .. ..	..	..	..	2	..	7.60

TABLE 12

Absolute and relative morbidity rates: NCs(E): Seychelles.

Diseases	1941			1942		
	Actual	Relative Rate	Rate per 1,000	Actual	Relative Rate	Rate per 1,000
(1) <i>Infective and Parasitic diseases</i>						
Infective hepatitis (Jaundice) ..	..	..	..	1	4.76	33.33
Malaria ..	..	..	..	3	14.29	100.00
Minor septic diseases ..	..	..	..	1	4.76	33.33
Venereal diseases ..	1	100.00	27.78	2	9.52	66.67
Total ..	1	100.00	27.78	7	33.33	233.33
(2) <i>Diseases of the Nervous system and sense organs</i>						
Eye diseases other than trachoma ..	..	..	..	3	14.29	100.00
(3) <i>Diseases of the Respiratory system</i>						
Tonsillitis ..	..	..	..	1	4.76	33.33
Influenza ..	..	..	..	1	4.76	33.33
Other respiratory diseases ..	..	..	..	6	28.57	200.00
Total ..	..	..	..	8	38.09	266.67
(4) <i>Diseases of the Digestive system</i>						
Other digestive diseases ..	..	..	..	2	9.52	66.67
(5) <i>All other diseases</i> ..	..	..	..	1	4.76	33.33
(6) <i>All diseases</i> ..	1	100.00	27.78	21	100.00	700.00

Section III

SUDAN AND ERITREA

In Tables 13 to 26 are given absolute and relative rates of morbidity for the troops of the Indian Army; separately for its Indian and British element and also by ranks, as far as possible. The period covered is from 1940 (September to December) to 1943 (January to August) only. The broken parts of the year 1940 and 1943 are due to the fact that troops were stationed in the different areas of Middle East and Africa according to the tactical and strategic requirements of the hot war raging on this front, which extends over a distance of about 2,000 miles. The Sudan and Eritrean and East African front remained active from July 1940 to May 1941. For instance, the period of actual engagements in Sudan and British Sommaliland extended from 4th July to 19th August 1940 and in Eritrea from 6th November 1940 to March 1941. Beyond 1941 the troops in this area were kept perhaps for a fear of the war again extending to them.

The average strength of Indian troops in this area varied from about 18,000 in 1940 to about 20,000 in 1941. The information given in the ensuing tables is based on AFA 31-A.

In the description below of the morbidity history, it may be remembered that the absolute rates for different diseases shown under 1940 pertain to a period of four months in that year. For a full year's picture, therefore, they may roughly be trebled to compare roughly with the annual data for 1941 and 1942. Similarly the 1943 rates as shown in these tables pertain to the months of January to August. It seems most extraordinary that the sickness suffered by the troops (VCOs and IORs) should have almost doubled in 1942 in absolute terms compared to that in 1941. This may partly be accounted for by a large reduction in the number of healthy troops sent elsewhere and partly due to the absence of actual hostilities. In terms of average number of patients in hospitals the story is not quite the same. For instance, this number was 311 daily during four months of 1940; 341 in 1941 but only 41 in 1942. There seems to be very little difference between the morbidity history of VCOs and IORs and that of all Indian troops taken together. The general pattern of sickness and injury was somewhat as follows. Battle casualties had the highest rate of 126 per 1,000 in 1941 followed by venereal diseases, dysentery, diarrhoea, scabies, pharyngitis, minor septic diseases and malaria. With a small readjustment in the respective importance of these diseases in between themselves, the story is repeated over the year 1940 as well as in past 1941 period.

The most important single fact emerging from this study seems to be the comparatively insignificant position occupied by malaria in the total morbidity. Another feature is the very high rate of battle casualties. The actual number of such casualties from month to month during 1940 and 1941 is reproduced on page 428.

It will be seen from this table that due to most heavy enemy activity (apparently round about February and March 1941) the

Battle casualties during 1940-41 in Sudan and Eritrea.

Month	1940		1941	
	VCOs & IORs	All Indian troops	VCOs & IORs	All Indian troops
January			83	91
February			586	593
March			799	823
April			201	203
May			152	154
June			59	62
July			26	26
August			51	51
September			16	16
October			1	2
November	16	16	1	1
December			2	3
Total	16	16	1977	2025

casualty rate was fantastically high. In March alone 823 casualties were admitted to hospital out of a total strength of about 34,000. This does not include minor injuries or such other injuries as were not admitted into hospitals.

On the whole the health of the Indian troops seemed to have remained very satisfactory during this tough time of war in Sudan and Eritrea; the respective absolute rates for VCOs and IORs from all causes were 69 per 1,000 in four months of 1940 and 401 per 1,000 in 1941.

Though non-combatants, the health history of NCs(E) as given in Tables 5 and 6 does not portray a widely different picture from that of VCOs and IORs already covered.

BORs and all British troops (Tables 18, 19, 23 and 24) seem to have suffered at a comparatively higher rate in the same area than the Indian troops. The rate of morbidity for BORs from all causes was 141 per 1,000 in the four months of 1940 and 935 per 1,000 in 1941. In terms of individual diseases the story is as follows. They seem to have suffered less through battle casualties but more from venereal diseases, minor septic diseases, scabies, tonsillitis, dysentery, diarrhoea and eye diseases. The rate of average daily sickness per 1,000 and the death rate were also higher for the BORs than that of the VCOs and IORs up to 1941. This pattern of sickness of the BORs is roughly identical with the pattern of morbidity of all British troops.

TABLE 13

*Admissions to Hospitals—Annual rates per 1,000 strength: VCOs and IORs:
Sudan and Eritrea.*

Diseases		1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
(1)	<i>Diseases</i>				
	Cerebrospinal fever ..	..	0.19	0.39	..
	Cholera ..	..	..	1.38	..
	Dengue ..	..	0.51	..	..
	Dysentery ..	4.26	19.16	26.00	6.11
	Enteric group of fevers ..	0.07	0.13	1.97	..
	Jaundice ..	0.89	1.85	8.86	4.08
	Malaria ..	14.73	12.46	127.07	7.47
	Minor septic diseases ..	4.48	13.73	18.32	17.66
	Mumps ..	0.14	4.66	11.23	1.36
	Oriental sore ..	..	..	0.39	..
	Poliomyelitis ..	0.14	..	0.79	..
	Sandfly fever ..	..	0.19	0.79	0.68
	Scabies ..	5.27	14.56	17.14	4.76
	Tuberculosis ..	0.36	1.08	1.18	1.36
	Venereal diseases ..	9.39	23.12	67.38	46.20
	Trachoma ..	0.22	2.11	3.74	3.40
	Eye diseases other than trachoma ..	2.17	6.39	21.67	12.23
	Rheumatic fever ..	0.07	0.51	1.38	0.68
	Mental diseases ..	0.22	1.53	7.68	1.36
	Common cold ..	2.38	7.09	14.38	16.30
	Tonsillitis ..	1.66	6.32	18.72	6.11
	Pharyngitis ..	3.61	14.05	33.49	9.51
	Influenza ..	0.22	0.19	..	..
	Diarrhoea ..	2.38	16.48	12.80	2.72
	Other digestive diseases	4.40	18.14	39.01	26.49
	PUO ..	..	0.32	5.12	2.04
	All other diseases ..	4.54	87.00	169.82	81.52
	All diseases ..	61.59	251.80	610.70	252.04
(2)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Local injuries ..	6.06	22.80	60.09	29.21
(3)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Bomb wounds ..	0.22	25.93	0.79	..
	Gunshot wounds ..	0.87	80.17	1.58	..
	Shell wounds ..	0.07	20.19	..	..
	Total ..	1.16	126.29	2.36	..
	All cases ..	68.81	400.89	673.15	281.25
(4)	<i>Average daily sick</i> ..	22.47	21.76	8.16	4.08
(5)	<i>Deaths</i> ..	0.14	2.36	2.56	0.68

TABLE 14

Relative morbidity rates: VCOs and IORs: Sudan and Eritrea.

Diseases	1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
Cerebrospinal fever ..	..	0.08	0.06	..
Cholera .. ..	..	..	0.23	..
Dengue .. ..	..	0.20	..	..
Dysentery	6.92	7.61	4.26	2.43
Enteric group of fevers ..	0.12	0.05	0.32	..
Jaundice	1.29	0.74	1.45	1.62
Malaria	23.94	4.95	20.81	2.96
Minor septic diseases ..	7.28	5.45	3.00	7.01
Mumps	0.23	1.85	1.84	0.54
Oriental sore .. ..	..	..	0.06	..
Poliomyelitis	0.23	..	0.13	..
Sandfly fever .. ..	..	0.08	0.13	0.27
Scabies	8.57	5.78	2.81	1.89
Tuberculosis	0.59	0.43	0.19	0.54
Veneral diseases	15.26	9.18	11.03	18.33
Trachoma	0.35	0.84	0.61	1.35
Eye diseases other than trachoma	3.52	2.54	3.55	4.85
Rheumatic fever	0.12	0.20	0.23	0.27
Mental diseases	0.35	0.61	1.26	0.54
Common cold	3.87	2.82	2.35	6.47
Tonsillitis	2.70	2.51	3.06	2.43
Pharyngitis	5.87	5.58	5.48	3.77
Influenza	0.35	0.08	..	..
Diarrhoea	3.87	6.54	2.10	1.08
Other digestive diseases	7.16	7.20	6.39	10.51
PUO .. ..	..	0.13	0.84	0.81
All other diseases	7.40	34.55	27.81	32.33
All diseases	100.00	100.00	100.00	100.00

TABLE 15

Annual rates of morbidity per 1,000 strength: Indian Officers: Sudan and Eritrea.

Diseases	1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
(1) <i>Diseases</i>				
Dysentery .. ..	..	..	20·00	..
Malaria	43·48	10·64	..	..
Minor septic diseases ..	..	..	20·00	..
Mumps .. ..	..	..	40·00	..
Venereal diseases .. ..	..	10·64	20·00	..
Mental diseases .. ..	..	10·64	..	..
Tonsillitis .. ..	..	31·91	20·00	..
Diarrhoea .. ..	..	10·64	..	..
All other diseases .. ..	..	31·91	60·00	..
All diseases	43·48	106·38	180·00	..
(2) <i>Accidents, Poisoning and violence (non-battle injuries)</i>				
Local injuries .. ..	..	20·28	40·00	..
(3) <i>Accidents, Poisoning and violence (battle injuries)</i>				
Gunshot wounds .. ..	..	10·64	..	..
Total .. ..	..	10·64	..	..
(4) <i>All cases</i>	43·48	138·30	220·00	..
(5) <i>Average daily sick</i>	3·91	4·04	5·60	..
(6) <i>Deaths</i> .. ..	..	..	..	..

TABLE 16

Admissions to Hospitals—Annual rates per 1,000 strength: NCs(E): Sudan and Eritrea

Diseases	1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
(1) <i>Diseases</i>				
Cerebrospinal fever ..	..	0.41	..	..
Cholera ..	..	..	0.75	..
Dengue ..	..	1.24	0.75	..
Dysentery ..	2.29	17.20	20.93	2.56
Enteric group of fevers ..	..	..	0.75	..
Jaundice ..	..	3.32	10.46	7.69
Malaria ..	3.75	15.54	56.80	2.56
Minor septic diseases ..	0.42	16.37	29.15	5.13
Mumps ..	..	5.39	3.74	..
Sandfly fever ..	..	0.21	..	..
Scabies ..	2.71	10.16	8.97	..
Tuberculosis ..	..	0.83	0.75	..
Veneral diseases ..	4.80	77.51	175.63	71.79
Trachoma ..	..	1.24	2.24	..
Eye diseases other than trachoma ..	0.42	6.22	28.40	7.69
Rheumatic fever ..	..	0.41	..	..
Mental diseases ..	..	0.21	2.24	5.13
Common cold ..	3.13	9.74	15.69	23.08
Tonsillitis ..	2.92	9.33	22.42	10.26
Pharyngitis ..	2.50	33.16	35.37	15.38
Influenza ..	..	0.41	..	..
Diarrhoea ..	1.88	12.85	8.97	7.69
Other digestive diseases	1.88	11.39	45.59	25.64
All other diseases ..	1.88	92.85	174.14	71.80
All diseases ..	28.56	326.01	644.24	256.41
(2) <i>Accidents, Poisoning and violence (non-battle injuries)</i>				
Local injuries ..	3.54	26.53	63.62	15.38
(3) <i>Accidents, Poisoning and violence (battle injuries)</i>				
Bomb wounds ..	..	3.73	..	..
Gunshot wounds ..	..	5.39	..	..
Shell wounds ..	..	1.66	..	..
Total ..	..	10.78	..	..
(4) <i>All cases</i> ..	32.11	363.31	707.77	271.80
(5) <i>Average daily sick</i> ..	8.32	19.61	11.42	2.13
(6) <i>Deaths</i> ..	..	2.49	4.48	5.13

TABLE 17
Relative morbidity rates: NCs(E): Sudan and Eritrea.

Diseases	1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
Cerebrospinal fever ...	..	0.13	..	..
Cholera .. ..	..	..	0.12	..
Dengue .. ..	..	0.38	0.12	..
Dysentery	8.03	5.28	3.25	1.00
Enteric group of fevers	..	..	0.12	..
Jaundice .. ..	..	1.02	1.62	3.00
Malaria	13.14	4.77	8.82	1.00
Minor septic diseases ..	1.46	5.02	4.52	2.00
Mumps .. ..	..	1.65	0.58	..
Sandfly fever .. ..	..	0.06	..	..
Scabies	9.49	3.11	1.39	..
Tuberculosis .. ..	..	0.25	0.12	..
Venereal diseases ..	16.79	23.78	27.26	28.00
Trachoma .. ..	..	0.38	0.35	..
Eye diseases other than trachoma	1.46	1.91	4.41	3.00
Rheumatic fever .. ..	..	0.13	..	..
Mental diseases .. ..	..	0.06	0.35	2.00
Common cold	10.95	2.99	2.44	9.00
Tonsillitis	10.22	2.86	3.48	4.00
Pharyngitis	8.76	10.17	5.57	6.00
Influenza .. ..	..	0.13	..	..
Diarrhoea	6.57	3.94	1.39	3.00
Other digestive diseases	6.57	3.50	7.08	10.00
All other diseases ..	6.56	28.48	27.01	28.00
All diseases	100.00	100.00	100.00	100.00

TABLE 18

Admissions to Hospitals—Annual rates per 1,000 strength: BORs: Sudan and Eritrea.

Diseases			1940 (Sept. to Dec.)	1941	1942
(1)	<i>Diseases</i>				
	Diphtheria .. ..		..	0.62	..
	Dysentery		19.77	20.94	..
	Jaundice		1.28	9.24	..
	Malaria		7.02	16.63	5.81
	Minor septic diseases ..		19.13	35.71	..
	Scabies		3.83	32.02	..
	Tuberculosis .. ..		..	0.62	..
	Venereal diseases ..		17.23	399.63	5.81
	Trachoma .. ..		..	2.46	..
	Eye-diseases other than trachoma		5.74	23.40	..
	Rheumatic fever ..		0.64	..	..
	Mental diseases ..		..	2.46	..
	Common cold		3.19	..	..
	Tonsillitis		5.74	32.64	..
	Pharyngitis		3.83	12.93	..
	Influenza		0.64	..	..
	Diarrhoea		7.65	24.01	..
	Other digestive diseases ..		14.03	24.63	..
	PUO .. ..		..	..	5.81
	All other diseases ..		22.32	200.74	..
	All diseases		132.01	838.67	17.44
(2)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Local injuries		8.93	30.79	5.81
(3)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Bomb wounds .. ..		..	3.08	..
	Gunshot wounds .. ..		..	58.50	..
	Shell wounds .. ..		..	4.31	..
	Total .. ..		..	65.89	..
(4)	<i>All cases</i>		140.94	935.34	23.26
(5)	<i>Average daily sick</i> ..		30.06	52.37	0.70
(6)	<i>Deaths</i> .. ..		..	3.69	..

TABLE 19
Relative morbidity rates: BORs: Sudan and Eritrea.

Diseases	1940 (Sept. to Dec.)	1941	1942
Diphtheria .. .. .	..	0.07	..
Dysentery	14.98	2.50	..
Jaundice	0.97	1.10	..
Malaria	5.31	1.98	33.33
Minor septic diseases	14.49	4.26	..
Scabies	2.90	3.82	..
Tuberculosis .. .. .	..	0.07	..
Venereal diseases	13.04	47.65	33.33
Trachoma .. .. .	..	0.29	..
Eye diseases other than trachoma	4.35	2.79	..
Rheumatic fever	0.48	..	..
Mental diseases .. .. .	..	0.29	..
Common cold	2.42	..	..
Tonsillitis	4.35	3.89	..
Pharyngitis	2.90	1.54	..
Influenza	0.48	..	..
Diarrhoea	5.80	2.86	..
Other digestive diseases	10.63	2.94	..
PUO .. .. .	..	..	33.33
All other diseases	16.91	23.94	..
All diseases	100.00	100.00	100.00

TABLE 20
Admissions to Hospitals—Annual rates per 1,000 strength: British Officers: Sudan and Eritrea.

Diseases	1940 (Sept. to Dec.)	1941	1942
(1) <i>Diseases</i>			
Dysentery .. .. .	..	14.26	8.20
Jaundice	1.89	4.07	8.20
Malaria	1.89	6.11	..
Minor septic diseases	1.89	10.18	..
Scabies .. .. .	..	2.04	..
Venereal diseases .. .. .	..	2.04	..
Eye diseases other than trachoma	1.89	6.11	..
Common cold	1.89	..	..
Tonsillitis	5.68	6.11	24.59
Pharyngitis .. .. .	..	2.04	..
Influenza	3.79	..	..
Diarrhoea	3.79	8.15	..
Other digestive diseases	7.58	16.29	..
All other diseases	7.58	44.81	49.18
All diseases	37.88	122.20	90.16

TABLE 20—(Contd.)

Diseases	1940 (Sept. to Dec.)	1941	1942
(2) <i>Accidents, Poisoning and violence (non-battle injuries)</i>			
Local injuries	5.68	24.44	8.19
(3) <i>Accidents, Poisoning and violence (battle injuries)</i>			
Bomb wounds .. ..	..	2.04	..
Gunshot wounds .. ..	..	28.51	..
Shell wounds .. ..	..	4.07	..
Total .. ..	..	34.62	..
(4) <i>All cases</i>	43.56	181.26	98.36
(5) <i>Average daily sick</i>	10.23	13.44	1.56
(6) <i>Deaths</i> .. ..	..	..	..

TABLE 21

Admissions to Hospitals—Annual rates per 1,000 strength: Indian Troops (all types): Sudan and Eritrea.

Diseases	1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
(1) <i>Diseases</i>				
Cerebrospinal fever ..	..	0.24	0.31	..
Cholera .. ..	..	..	1.23	..
Dengue .. ..	..	0.68	0.15	..
Dysentery	3.75	18.60	24.86	5.34
Enteric group of fevers ..	0.05	0.10	1.70	..
Jaundice	0.59	2.19	9.11	4.80
Malaria	11.94	13.16	111.33	6.40
Minor septic diseases ..	3.43	14.28	20.54	14.94
Mumps	0.11	4.81	9.88	1.07
Oriental sore .. ..	..	..	0.31	..
Poliomyelitis	0.11	..	0.62	..
Sandfly fever .. ..	..	0.19	0.62	0.53
Scabies	4.61	13.45	15.29	3.74
Tuberculosis	0.27	1.02	1.08	1.07
Veneral diseases	8.19	35.80	89.25	51.23
Trachoma	0.16	1.89	3.40	2.67
Eye diseases other than trachoma ..	1.71	6.31	22.85	11.21
Rheumatic fever	0.05	0.49	1.08	0.53
Mental diseases	0.16	1.26	6.48	2.13
Common cold	2.57	7.67	14.51	17.61
Tonsillitis	1.98	7.14	19.76	6.94
Pharyngitis	3.32	18.50	33.82	10.67
Influenza	0.16	0.24	..	..
Diarrhoea	2.25	15.59	11.89	3.74
Other digestive diseases	3.75	16.56	39.99	26.15
PUO .. ..	..	0.24	4.01	1.60
All other diseases ..	3.86	88.06	169.55	78.98

Table 21—(Contd.)

Diseases	1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
All diseases ..	53.02	268.50	613.65	251.33
(2) <i>Accidents, Poisoning and violence (non-battle injuries)</i>				
Local injuries ..	5.41	23.65	60.68	26.15
(3) <i>Accidents, Poisoning and violence (battle injuries)</i>				
Bomb wounds ..	0.16	20.59	0.62	..
Gunshot wounds ..	0.64	62.27	1.23	..
Shell wounds ..	0.05	15.74	..	..
Total ..	0.86	98.60	1.85	..
(4) <i>All cases</i> ..	59.29	390.76	676.19	277.48
(5) <i>Average daily sick</i> ..	18.81	21.17	8.81	3.66
(6) <i>Deaths</i> ..	0.11	2.38	2.93	1.60

TABLE 22

Relative morbidity rates: Indian Troops (all types): Sudan and Eritrea.

Diseases	1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
Cerebrospinal fever ..	..	0.09	0.05	..
Cholera ..	..	..	0.20	..
Dengue ..	..	0.25	0.02	..
Dysentery ..	7.07	6.93	4.05	2.12
Enteric group of fevers ..	0.10	0.04	0.28	..
Jaundice ..	1.11	0.81	1.48	1.91
Malaria ..	22.52	4.90	18.14	2.55
Minor septic diseases ..	6.46	5.32	3.35	5.94
Mumps ..	0.20	1.79	1.61	0.42
Oriental sore ..	..	..	0.05	..
Poliomyelitis ..	0.20	..	0.10	..
Sandfly fever ..	..	0.07	0.10	0.21
Scabies ..	8.69	5.01	2.49	1.49
Tuberculosis ..	0.50	0.38	0.18	0.42
Venereal diseases ..	15.45	13.33	14.54	20.38
Trachoma ..	0.30	0.70	0.55	1.06
Eye diseases other than Trachoma ..	3.23	2.35	3.72	4.46
Rheumatic fever ..	0.10	0.18	0.18	0.21
Mental diseases ..	0.30	0.47	1.06	0.85
Common cold ..	4.85	2.86	2.36	7.01
Tonsillitis ..	3.74	2.66	3.22	2.76
Pharyngitis ..	6.26	6.89	5.51	4.25
Influenza ..	0.30	0.09	..	..
Diarrhoea ..	4.24	5.81	1.94	1.49
Other digestive diseases ..	7.07	6.17	6.52	10.40
PUO ..	..	0.09	0.65	0.64
All other diseases ..	7.27	32.80	27.63	31.43
All diseases ..	100.00	100.00	100.00	100.00

TABLE 23

*Admissions to Hospitals—Annual rates per 1,000 strength: British Troops
(all types): Sudan and Eritrea.*

Diseases	1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
(1) <i>Diseases</i>				
Dyphtheria ..	..	0.47	..	..
Dysentery ..	14.79	19.39	3.32	..
Jaundice ..	1.43	8.04	3.32	..
Malaria ..	5.72	14.18	3.32	..
Minor septic diseases ..	14.79	29.79	..	..
Scabies ..	2.86	25.06	..	..
Tuberculosis ..	..	0.47	..	..
Venereal diseases ..	12.88	307.33	3.32	..
Trachoma ..	..	1.89	..	..
Eye diseases other than trachoma ..	4.77	19.39	..	..
Rheumatic fever ..	0.48	..	..	..
Mental diseases ..	..	1.89	..	..
Common cold ..	2.86	..	..	..
Tonsillitis ..	5.72	26.48	9.97	..
Pharyngitis ..	2.86	10.40	..	..
Influenza ..	1.43	..	..	..
Diarrhoea ..	6.68	20.33	..	..
Other digestive diseases	12.40	22.69	..	..
PUO ..	..	..	3.32	..
All other diseases ..	18.61	164.54	19.93	..
All diseases ..	108.30	672.34	46.51	..
(2) <i>Accidents, Poisoning and violence (non-battle injuries)</i>				
Local injuries ..	8.11	29.31	6.64	..
(3) <i>Accidents, Poisoning and violence (battle injuries)</i>				
Bomb wounds ..	..	2.84	..	..
Gunshot wounds ..	..	51.54	..	..
Shell wounds ..	..	4.26	..	..
Total ..	..	58.63	..	..
(4) <i>All cases</i> ..	116.41	760.28	53.15	..
(5) <i>Average daily sick</i> ..	25.06	43.33	1.03	..
(6) <i>Deaths</i> ..	..	2.84	..	..

TABLE 24

Relative morbidity rates: British troops (all types): Sudan and Eritrea.

Diseases	1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
Diphtheria .. ..	..	0.07	..	..
Dysentery	13.66	2.88	7.14	..
Jaundice	1.32	1.20	7.14	..
Malaria	5.29	2.11	7.14	..
Minor septic diseases ..	13.66	4.43	..	..
Scabies	2.64	3.73	..	..
Tuberculosis .. ..	..	0.07	..	..
Venereal diseases ..	11.89	45.71	7.14	..
Trachoma .. ..	..	0.28	..	..
Eye diseases other than trachoma	4.41	2.88	..	..
Rheumatic fever	0.44	..	..	..
Mental diseases .. ..	..	0.28	..	..
Common cold	2.64	..	..	..
Tonsillitis	5.29	3.94	21.43	..
Pharyngitis	2.64	1.55	..	..
Influenza	1.32	..	..	..
Diarrhoea	6.17	3.02	..	..
Other digestive diseases ..	11.45	3.38	..	..
PUO .. ..	..	..	7.14	..
All other diseases	17.18	24.47	42.86	..
All diseases	100.00	100.00	100.00	..

TABLE 25

Admissions to Hospitals—Annual rates per 1,000 strength: Indian and British troops: Sudan and Eritrea.

Diseases	1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
(1) <i>Diseases</i>				
Cerebrospinal fever ..	..	0.22	0.29	..
Cholera .. ..	..	..	1.18	..
Dengue .. ..	..	0.62	0.15	..
Diphtheria .. ..	..	0.04	..	..
Dysentery	4.86	18.68	23.90	5.04
Enteric group of fevers ..	0.05	0.09	1.62	..
Jaundice	0.67	2.73	8.85	4.53
Malaria	11.32	13.26	106.54	6.04
Minor septic diseases ..	4.57	15.72	19.63	14.10
Mumps	0.10	4.36	9.44	1.01
Oriental sore .. ..	..	..	0.29	..
Poliomyelitis	0.10	..	0.59	..

TABLE 25—(Contd.)

Diseases	1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
Sandfly fever ..	..	0.18	0.59	0.50
Scabies ..	4.43	14.54	14.61	3.52
Tuberculosis ..	0.24	0.97	1.03	1.01
Venereal diseases ..	8.69	61.09	85.44	48.34
Trachoma ..	0.14	1.89	3.25	2.52
Eye diseases other than trachoma ..	2.02	7.53	21.84	10.57
Mental diseases ..	0.14	1.32	6.20	2.01
Rheumatic fever ..	0.10	0.44	1.03	0.50
Common cold ..	2.60	6.96	13.87	16.62
Tonsillitis ..	2.36	8.94	19.33	6.55
Pharyngitis ..	3.27	17.75	32.31	10.07
Influenza ..	0.29	0.22	..	..
Diarrhoea ..	2.70	16.03	11.36	3.52
Other digestive diseases	4.62	17.13	38.22	24.67
PUO ..	..	0.22	3.98	1.51
All other diseases ..	5.34	95.18	162.90	74.52
All diseases ..	58.61	306.13	588.46	237.16
(2) <i>Accidents, Poisoning and violence (non-battle injuries)</i>				
Local injuries ..	5.68	24.18	58.29	24.67
(3) <i>Accidents, Poisoning and violence (battle injuries)</i>				
Bomb wounds ..	0.14	18.94	0.59	..
Gunshot wounds ..	0.58	61.27	0.18	..
Shell wounds ..	0.05	14.67	..	..
Total ..	0.77	94.88	1.77	..
(4) <i>All cases</i> ..	65.06	425.19	648.52	261.83
(5) <i>Average daily sick</i> ..	19.45	23.23	8.46	3.45
(6) <i>Deaths</i> ..	0.10	2.42	2.80	1.51

TABLE 26

Relative morbidity rates: British and Indian Troops: Sudan and Eritrea.

Diseases	1940 (Sept. to Dec.)	1941	1942	1943 (Jan. to Aug.)
Cerebrospinal fever ..	..	0.07	0.05	..
Cholera ..	..	..	0.20	..
Dengue ..	..	0.20	0.02	..
Dysentery ..	8.30	6.10	4.06	2.12
Diphtheria ..	..	0.01	..	..
Enteric group of fevers ..	0.08	0.03	0.28	..
Jaundice ..	1.16	0.89	1.50	1.91
Malaria ..	19.31	4.33	18.10	2.55

TABLE 26—(Contd.)

Diseases			1940 (Sept. to Dec.)	1941	1942	1943 (Jan to Aug.)
Minor septic diseases	..		7.81	5.14	3.33	5.94
Mumps	..		0.16	1.42	1.60	0.42
Oriental sore	..		..	..	0.05	..
Poliomyelitis	..		0.16	..	0.10	..
Sandfly fever	..		..	0.06	0.10	0.21
Scabies	..		7.56	4.75	2.48	1.49
Tuberculosis	..		0.41	0.32	0.18	0.42
Venereal diseases	..		14.79	19.97	14.52	20.38
Trachoma	..		0.25	0.62	0.55	1.06
Eye diseases other than trachoma	..	than	3.45	2.44	3.71	4.46
Mental diseases	..		0.25	0.43	1.05	0.85
Rheumatic fever	..		0.16	0.14	0.18	0.21
Common cold	..		4.44	2.27	2.39	7.01
Tonsillitis	..		4.03	2.92	3.28	2.76
Pharyngitis	..		5.59	5.80	5.49	4.25
Influenza	..		0.49	0.07	..	..
Diarrhoea	..		4.60	5.24	1.93	1.49
Other digestive diseases	..		7.89	5.60	6.49	10.40
PUO	..		..	0.07	0.68	0.64
All other diseases	..		9.12	31.09	27.68	31.42
All diseases	..		100.00	100.00	100.00	100.00

Section IV

EGYPT INCLUDING SYRIA, PALESTINE AND CYPRUS

The theatres covered in this section are Egypt, Syria, Palestine and Cyprus where due perhaps due to a very inflammable situation troops moved in almost from the beginning of the war. Indian troops also started to gather there from 1940. So much so that 1943 fell short of a lac of troops only by a small margin. Figures given in Tables 1 to 22 cover the period from September 1939 to the end of 1945. It would, however, be useful to confine attention in these tables specially to the years 1940 and 1942-45. Due to non-availability of the statistical returns for January to August 1941 in the Headquarters, it has not been possible to cover the complete year.

The data are based on AFA 31-A. The strength figures also have been taken from the same returns as far as available. In some cases, however, this became an impossibility and the rates are based on the strength figures available from the Statistical Review of the Army in India.

VCOs AND IORS (TABLES 27-29)

In terms of general welfare it may be stated from a record of morbidity given here that with a strain of war being what it was, in these theatres, the VCOs and IORs stood up against sickness and injury as well, if not more, as on the battle-field. An average rate of about 400 to 500 per 1,000 strength from all causes should not be considered on the high side. Also an average daily sick rate fluctuating between 4 to 8 per 1,000 strength is undoubtedly a good record. It is a curious fact that local injuries in these theatres should have caused such heavy sickness, not only among the VCOs and IORs (Table 28) but also in BORs (Table 35). In terms of actual magnitude the rates varied between 44 per 1,000 to 64 per 1,000. Battle injuries accounted for a heavy rate from 1940 onward. The annual variations in the rates of some of the major diseases named below is interesting; but their individual impact on total morbidity every year was more or less of an identical type. They are malaria, dysentery, diarrhoea, scabies, venereal diseases, pharyngitis, digestive diseases, minor septic diseases and eye diseases. Their relative contribution to the total sickness may be seen in Table 28. Taken in specialist groups, infective and parasitic diseases accounted for more than a 1/4th to 1/3rd of all casualties (Table 29).

INDIAN OFFICERS (TABLE 30)

Independent figures in this case are available upto 1944. In 1945 these officers have been grouped with British officers. As it should be, the health of these troops was even better than that of the VCOs and IORs. Within the limits set by the total annual rates, and with the exception of diseases like dengue, diphtheria, sandfly fever, tonsillitis, the relative causation of other diseases seems identical with the picture presented by the VCOs and IORs.

NCS(E) (TABLES 31-33)

Except for battle casualties and common cold the morbidity history of these troops does not differ much from the history of the other Indian troops covered above.

IMNS (TABLE 34)

The strength of these troops was very limited, and never exceeded one hundred. Even so their susceptibility to general sickness, particularly to mumps, sandfly fever, tuberculosis and tonsillitis was on an average higher than the other troops.

BORS (TABLES 35-37)

These are British other ranks forming part of the Indian Army stationed in these theatres. Their strength was naturally very low compared to the strength of Indian troops. Under the circumstances it may not be quite scientific to treat the pattern of sickness indicated in Tables 35-37 as conforming to the true pattern of British troops. For whatever it is worth it will be seen (Table 35) that these troops had very low VD rates generally and suffered less than the Indian troops from the eye diseases and battle casualties. Overall annual rates for BORs fluctuated between 104 per 1,000 to about 393 per 1,000 producing average daily sick rate of 2 to 11 per 1,000.

Since the strength of the British elements of the Indian Army was not at all comparable to the strength of the Indian troops the picture of morbidity presented in Tables 14-16 and 17-19 of all Indian and British troops and all Indian and British troops taken together (Tables 46-48) will be seen to differ very little from the variations available in the Tables covered under Indian troops.

TABLE 27

Admissions to Hospitals—Annual rates per 1,000 strength: VCOs and IORs: Egypt including Syria, Palestine and Cyprus.

Diseases	1939 (Sept. to Dec.)	1940	1941 (Sept. to Dec.)	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever ..	0.20	1.21	0.15	0.76	1.10	0.71	..
Cholera ..	..	..	..	..	1.28	0.03	..
Dengue ..	..	..	..	..	0.05	0.87	0.04
Diphtheria ..	..	0.24	1.04	0.23	0.05	0.87	0.04
Dysentery ..	27.47	31.44	11.62	31.05	10.20	10.66	5.83
Enteric group of fevers	0.20	0.36	..	0.07	0.06	0.16	..
Infective hepatitis (Jaundice) ..	0.61	1.33	1.60	4.09	3.54	3.25	6.33
Malaria ..	19.60	21.24	7.67	30.62	42.82	28.56	11.26
Major septic diseases..	..	..	..	..	..	..	0.54
Minor septic diseases	23.84	18.33	12.04	34.60	27.75	30.36	17.92
Mumps ..	3.64	0.85	2.57	14.87	3.23	5.47	2.48
Oriental sore ..	0.20	0.12	0.02	0.07	0.05	0.11	0.07

TABLE 27—(Contd.)

Diseases	1939 (Sept. to Dec.)	1940	1941 (Sept. to Dec.)	1942	1943	1944	1945
Poliomyelitis ..	..	..	..	0.08	..	0.55	..
Sandfly fever ..	..	4.13	0.05	9.10	5.23	2.88	0.58
Scabies ..	12.12	19.55	13.05	29.14	10.12	10.10	5.36
Small pox ..	..	..	0.02	0.05	0.03	0.61	..
Tuberculosis ..	0.40	1.46	0.44	1.96	2.57	2.06	1.83
Trachoma ..	1.21	5.46	0.76	4.69	3.51	3.04	4.53
Typhus fever ..	..	..	..	0.12	1.35	..	..
Venereal diseases ..	24.85	31.08	8.49	20.44	9.78	16.29	26.95
Total ..	114.35	136.82	59.54	181.94	122.68	116.88	84.01
(2) <i>Allergic, Endocrine system Metabolic and Nutritional diseases</i>							
Scurvy ..	..	..	..	..	..	..	0.07
(3) <i>Diseases of the Blood and Blood forming organs</i>							
Nutritional and other anaemia ..	..	..	..	..	..	..	0.90
(4) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases ..	0.40	1.70	0.74	4.49	3.96	5.24	4.57
(5) <i>Diseases of the Nervous system and sense organs</i>							
ENT diseases ..	..	..	..	..	..	..	8.35
Eye diseases other than trachoma ..	..	..	7.38	23.92	16.61	15.42	10.83
Total ..	..	..	7.38	23.92	16.61	15.42	19.18
(6) <i>Diseases of the Circulatory system</i>							
Rheumatic fever ..	0.81	0.24	0.22	0.41	0.22	0.21	0.29
Other circulatory diseases ..	..	..	..	..	..	..	1.22
Total ..	0.81	0.24	0.22	0.41	0.22	0.21	1.51
(7) <i>Diseases of the Respiratory system</i>							
Common cold ..	6.26	14.81	5.33	25.73	12.44	12.48	6.01
Tonsillitis ..	5.66	11.90	2.57	7.89	5.51	5.79	5.07
Pharyngitis ..	11.51	19.18	5.08	20.04	12.32	11.35	0.40
Influenza ..	..	0.61	0.05	1.41	0.20	0.61	0.29
Pneumonia ..	1.41	3.64	..	..	..	..	1.40
Other respiratory diseases ..	21.21	29.01	..	..	..	..	8.27
Total ..	46.06	79.15	13.03	55.07	30.47	30.23	21.44
(8) <i>Diseases of the Digestive system</i>							
Diarrhoea ..	20.40	9.10	2.76	24.17	10.41	7.01	5.54
Other digestive diseases	24.24	25.37	7.99	38.38	24.23	26.24	25.51
Total ..	44.65	34.48	10.76	62.55	34.65	33.24	31.05
(9) <i>Diseases of the Skin and Cellular tissues</i>							
Skin diseases ..	..	..	..	..	..	..	19.93
(10) <i>Symptoms, Senility and Ill- defined conditions</i>							
NYD fever ..	..	..	..	..	..	..	1.62
PUO ..	..	0.24	0.20	1.94	1.79	3.68	5.58
Total ..	..	0.24	0.20	1.94	1.79	3.68	7.20
(11) <i>All other diseases</i>	77.98	170.81	63.34	179.67	154.18	167.10	82.82
(12) <i>All diseases</i>	284.24	423.45	155.19	510.01	364.58	371.99	272.68
(13) <i>Accidents, Poisoning and violence (non-battle in- juries)</i>							
Burns and scalds ..	..	..	..	..	..	..	0.58

TABLE 27—(Contd.)

Diseases		1939 (Sept. to Dec.)	1940	1941 (Sept. to Dec.)	1942	1943	1944	1945
(14)	Other local injuries ..	48.89	48.80	18.16	64.02	62.89	55.04	43.68
	Total ..	48.89	48.80	18.16	64.02	62.89	55.04	44.25
	Accidents, Poisoning and violence (battle injuries)							
	Bomb wounds ..	..	..	3.75	4.26	3.14	1.16	0.14
	Gunshot wounds ..	..	..	16.31	18.70	14.48	4.42	0.47
	Shell wounds ..	..	..	2.39	8.40	14.36	6.32	0.22
	Total ..	..	..	22.45	31.37	31.99	11.90	0.83
	(15) All cases ..	333.13	472.26	195.80	605.39	459.47	438.93	317.77
	(16) Average daily sick ..	31.14	33.51	4.55	4.29	3.70	7.52	8.2
	(17) Deaths ..	0.61	1.70	0.62	2.49	1.83	1.93	3.24

TABLE 28

Relative morbidity rates: VCOs and IORs: Egypt including Syria, Palestine and Cyprus.

Diseases		1939	1940	1941 (Sept. to Dec.)	1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>							
	Cerebrospinal fever ..	0.07	0.29	0.09	0.15	0.30	0.19	..
	Cholera ..	..	..	..	..	..	0.31	0.10
	Dengue ..	..	..	..	..	0.35	0.01	..
	Diphtheria ..	..	0.06	0.67	0.04	0.01	0.23	0.01
	Dysentery ..	9.67	7.42	7.49	6.09	2.80	2.86	2.14
	Enteric group of fevers	0.07	0.09	..	0.01	0.02	0.04	..
	Infective hepatitis (Jaundice) ..	0.21	0.32	1.03	0.80	0.97	0.87	2.26
	Malaria ..	6.89	5.02	4.94	6.00	11.74	7.68	4.13
	Major septic diseases ..	..	..	..	..	..	..	0.20
	Minor septic diseases ..	8.39	4.33	7.76	6.78	7.61	8.16	6.57
	Mumps ..	1.28	0.20	1.65	2.92	0.89	1.47	0.91
	Oriental sore ..	0.07	0.03	0.02	0.01	0.01	0.03	0.03
	Poliomyelitis ..	..	..	..	0.02	..	0.15	..
	Sandfly fever ..	..	0.97	0.03	1.78	1.43	0.77	0.21
	Scabies ..	4.26	4.62	8.41	5.71	2.78	2.72	1.97
	Smallpox ..	..	..	0.02	0.01	0.01	0.16	..
	Tuberculosis ..	0.14	0.34	0.29	0.38	0.70	0.55	0.67
	Trachoma ..	0.43	1.29	0.49	0.92	0.96	0.82	1.66
	Typhus fever ..	..	..	..	0.02	0.37	..	..
	Venereal diseases ..	8.74	7.34	5.47	4.01	2.68	4.38	9.88
	Total ..	40.23	32.31	38.37	35.68	33.65	31.41	30.81
	(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>							
	Scurvy ..	..	..	..	..	..	..	0.03
	(3) <i>Diseases of the Blood and Blood forming organs</i>							
	Nutritional and other anaemia ..	..	..	..	..	..	..	0.33
	(4) <i>Mental, Psychoneurotic and Personality disorders</i>							
	Mental diseases ..	0.14	0.40	0.48	0.88	1.09	1.41	1.68

Relative casualty rates: VCOs and IORs: Egypt including Syria, Palestine and Cyprus.

[illegible]

TABLE 30
*Admissions to Hospitals—Annual rates per 1,000 strength and relative morbidity rates: Indian officers: Egypt
 including Syria, Palestine and Cyprus.*

Diseases	1941		1942		1943		1944	
	Rate per 1,000	Relative Rate	Rate per 1,000	Relative Rate	Rate per 1,000	Relative Rate	Rate per 1,000	Relative Rate
(1) <i>Infectious and Parasitic diseases</i>								
Dengue ..	..	..	5.15	2.04	2.56	2.63	..	..
Diphtheria ..	..	..	15.46	6.12	7.67	7.90	2.82	14.30
Malaria ..	..	..	10.31	4.08	7.67	7.90	..	..
Minor septic diseases	..	..	15.46	6.12	..	..	..	..
Sandfly fever ..	..	..	..	..	2.56	2.63	..	..
Trachoma ..	..	..	46.39	18.37	20.46	21.06	2.82	14.30
Total ..	..	..	..	..	..	..	..	..
(2) <i>Mental, Psychoneurotic and Personality disorders</i>								
Mental diseases ..	..	..	5.15	2.04	..	..	..	..
(3) <i>Diseases of the Nervous system and sense organs</i>								
ENT diseases ..	..	..	15.46	6.12	..	..	2.82	14.30
Eye diseases other than trachoma	..	..	15.46	6.12	..	..	2.82	14.30
Total ..	..	..	..	..	..	..	..	..
(4) <i>Diseases of the Respiratory system</i>								
Common cold ..	..	..	20.62	8.16	2.56	2.63	..	..
Tonsillitis ..	..	..	15.46	6.12	2.56	2.63	..	..
Pharyngitis ..	..	..	5.15	2.04	..	..	..	..
Influenza ..	..	..	41.24	16.33	5.12	5.26	..	..
Total ..	..	..	..	..	..	..	..	..
(5) <i>Diseases of the Digestive system</i>								
Diarrhoea ..	..	..	10.31	4.08	7.67	7.90	..	..
Other digestive diseases	..	..	25.77	10.20	20.46	21.06	2.82	14.30
Total ..	12.05	100.00	26.08	14.29	28.13	28.95	2.82	14.30
(6) <i>Symptoms, Senility and Ill-defined conditions</i>								
P.U.O ..	..	..	20.62	8.16	..	..	..	..
Total ..	..	..	20.62	8.16	..	..	..	..
(7) <i>All other diseases</i>								
All diseases ..	..	..	87.63	34.70	43.48	44.74	11.30	57.20
(8) <i>Accidents, Poisoning and violence (non-battle injuries)</i>								
Burns and scalds ..	..	..	252.57	100.00	97.18	100.00	19.77	100.00
Other local injuries	..	..	..	..	..	..	..	..
Total ..	..	..	46.39	..	17.90	..	..	..
(10) <i>All cases</i>								
Average daily sick ..	12.05	..	298.97	..	115.09	..	39.55	..
(11) <i>Deaths</i>								
Average daily sick ..	3.25	..	7.99	..	3.35	..	1.07	..
(12) <i>Deaths</i>								
Average daily sick ..	..	..	5.15	..	..	..	..	..

TABLE 31

Admissions to Hospitals—Annual rates per 1,000 strength: NCs(E): Egypt including Syria, Palestine and Cyprus.

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever ..	0.66	0.37	0.13	0.56	1.36	0.68	..
Cholera ..	..	..	..	..	..	0.97	..
Dengue ..	0.66	..	..	..	..	0.10	..
Diphtheria ..	..	0.37	1.16	0.09	..	0.68	..
Dysentery ..	9.26	20.48	11.52	22.71	8.95	8.71	7.50
Enteric group of fevers	..	..	..	0.05	0.04	0.10	..
Infective hepatitis (Jaundice) ..	1.32	2.56	1.16	2.41	3.20	0.87	5.01
Malaria ..	24.47	23.41	7.18	15.62	25.72	14.33	7.86
Major septic diseases ..	..	..	..	..	..	..	0.54
Minor septic diseases ..	17.20	23.77	11.33	27.49	21.51	19.84	21.98
Mumps ..	..	0.37	8.22	13.86	5.40	2.13	2.68
Oriental sore ..	0.66	..	..	0.09	0.04	..	..
Plague ..	..	..	..	..	..	0.10	..
Poliomyelitis ..	..	..	..	..	..	0.68	..
Sandfly fever ..	..	2.93	0.52	2.13	2.90	2.13	..
Scabies ..	8.60	13.90	14.17	26.52	9.22	6.39	5.90
Smallpox ..	..	..	..	0.05	0.18	..	..
Tuberculosis ..	..	2.19	0.52	1.30	1.54	1.06	2.68
Trachoma ..	0.66	5.12	1.68	4.31	3.42	3.00	5.36
Typhus ..	..	..	..	0.09	2.46	..	..
Veneral diseases ..	37.04	64.74	15.47	36.53	14.79	20.23	62.01
Total ..	100.53	160.21	72.07	153.82	100.72	81.99	121.51
(2) <i>Diseases of the Blood and Blood-forming organs</i>							
Nutritional and other anaemia ..	..	..	..	..	..	..	1.25
(3) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases ..	0.66	3.29	1.42	2.83	3.77	3.77	4.82
(4) <i>Diseases of the Nervous system and sense organs</i>							
ENT diseases ..	..	..	..	..	..	..	8.40
Eye diseases other than trachoma ..	..	..	7.38	24.24	17.56	17.42	14.47
Total ..	..	..	7.38	24.24	17.56	17.42	22.87
(5) <i>Diseases of the Circulatory system</i>							
Rheumatic fever ..	1.98	0.37	0.26	0.18	0.09	..	0.18
Other circulatory diseases ..	..	..	..	..	..	..	1.61
Total ..	1.98	0.37	0.26	0.18	0.09	..	1.79
(6) <i>Diseases of the Respiratory system</i>							
Common cold ..	11.24	16.82	6.67	19.47	12.82	10.07	9.83
Tonsillitis ..	5.95	16.82	2.72	6.30	5.05	4.26	4.82
Pharyngitis ..	15.21	27.07	5.76	19.28	14.57	9.29	1.07
Influenza ..	..	0.37	..	0.79	0.18	0.29	..
Pneumonia ..	1.98	4.75	..	..	..	..	2.32
Other respiratory diseases ..	..	..	..	..	..	..	11.26
Total ..	28.44	45.35	15.15	45.84	32.61	23.91	29.31
(7) <i>Diseases of the Digestive system</i>							
Diarrhoea ..	6.61	10.97	3.75	17.57	12.86	6.00	9.29
Other digestive diseases	22.49	31.46	11.33	33.93	23.70	25.36	30.20
Total ..	29.10	42.43	15.08	51.50	36.56	31.36	39.49
(8) <i>Diseases of the Skin and Cellular tissues</i>							
Skin diseases ..	..	..	..	..	..	..	24.66

TABLE 31—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(9) <i>Symptoms, Senility and Ill-defined conditions</i>							
NYD fever ..	..	..	..	..	..	..	3.22
PUO ..	..	..	0.06	0.74	1.49	2.61	5.54
Total ..	..	..	0.06	0.74	1.49	2.61	8.76
(10) <i>All other diseases</i> ..	95.23	209.22	84.20	189.23	148.13	127.78	109.72
(11) <i>All diseases</i> ..	290.34	526.70	196.62	468.40	340.94	288.87	364.19
(12) <i>Accidents, Poisoning and violence (non-battle injuries)</i>							
Burns and scalds ..	..	..	..	..	..	..	0.36
Other local injuries ..	19.18	34.75	17.80	45.75	41.34	23.33	28.41
Total ..	19.18	34.75	17.80	45.75	41.34	23.33	28.77
(13) <i>Accidents, Poisoning and violence (battle injuries)</i>							
Bomb wounds ..	..	..	0.65	1.48	0.48	0.29	..
Gunshot wounds ..	..	..	1.04	3.24	0.75	0.48	..
Shell wounds ..	..	..	0.26	2.64	1.05	0.58	..
Total ..	..	..	1.94	7.37	2.28	1.35	..
(14) <i>All cases</i> ..	309.52	561.45	216.36	521.53	384.56	313.55	392.96
(15) <i>Average daily sick</i> ..	..	..	5.09	3.95	3.75	5.44	6.57
(16) <i>Deaths</i> ..	..	..	0.97	1.53	0.97	0.77	1.61

TABLE 32

Relative morbidity rates: NCs(E): Egypt including Syria, Palestine and Cyprus.

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever ..	0.23	0.07	0.07	0.12	0.40	0.23	..
Cholera ..	..	..	..	..	..	0.33	..
Dengue ..	0.23	..	..	..	..	0.03	..
Diphtheria ..	..	0.07	0.59	0.02	..	0.23	..
Dysentery ..	3.19	3.89	5.86	4.85	2.63	3.02	2.06
Enteric group of fevers ..	..	..	..	0.01	0.01	0.03	..
Infective hepatitis (Jaundice) ..	0.46	0.49	0.59	0.51	0.94	0.30	1.38
Malaria ..	8.43	4.44	3.65	3.33	7.54	4.96	2.16
Major septic diseases ..	..	..	..	..	..	..	0.15
Minor septic diseases ..	5.92	4.51	5.76	5.87	6.31	6.87	6.03
Mumps ..	..	0.07	4.18	2.96	1.58	0.74	0.74
Oriental sore ..	0.23	..	..	0.02	0.01	..	..
Plague ..	..	..	..	..	..	0.03	..
Poliomyelitis ..	..	..	..	..	..	0.23	..
Sandfly fever ..	..	0.55	0.26	0.45	0.85	0.74	..
Scabies ..	2.96	2.64	7.21	5.66	2.70	2.21	1.62
Smallpox ..	..	..	..	0.01	0.05	..	..
Tuberculosis ..	..	0.42	0.26	0.28	0.45	0.37	0.74
Trachoma ..	0.23	0.97	0.86	0.92	1.00	1.04	1.47
Typhus fever ..	..	..	..	0.02	0.72	..	..
Venereal diseases ..	12.76	12.29	7.87	7.80	4.34	7.00	17.03
Total ..	34.63	30.42	37.16	32.83	29.54	28.39	33.36
(2) <i>Diseases of the Blood and Blood forming organs</i>							
Nutritional and other anaemia ..	..	..	..	..	..	..	0.34
(3) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases ..	0.23	0.62	0.72	0.60	1.11	1.31	1.32
(4) <i>Diseases of the Nervous system and sense organs</i>							
ENT diseases ..	..	..	..	..	..	..	2.31
Eye diseases other than trachoma ..	..	..	3.75	5.18	5.15	6.03	3.97
Total ..	..	..	3.75	5.18	5.15	6.03	6.28

TABLE 32—(Contd.)

[illegible]

TABLE 33

Relative casualty rates: NCs(E): Egypt including Syria, Palestine and Cyprus.

[illegible]

TABLE 35

Admissions to Hospitals—Annual rates per 1,000 strength: BORs: Egypt including Syria, Palestine and Cyprus.

Diseases	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Cerebrospinal fever ..	1.76	..	..	..	..
Cholera ..	..	..	..	4.87	..
Diphtheria ..	..	..	0.71	..	..
Dysentery ..	18.45	10.76	14.89	4.87	1.60
Infective hepatitis (Jaundice) ..	7.02	2.87	8.51	9.73	3.20
Malaria ..	14.06	6.46	46.10	4.87	4.81
Minor septic diseases ..	11.42	10.04	34.75	20.68	1.60
Mumps ..	..	..	0.71	..	..
Poliomyelitis ..	..	..	..	3.65	..
Sandfly fever ..	..	6.46	2.84	..	..
Scabies ..	0.88	3.59	5.67	20.68	1.60
Tuberculosis ..	0.88	1.43	..	..	..
Trachoma ..	..	..	4.96	1.22	..
Venereal diseases ..	4.39	2.15	2.13	3.65	1.60
Total ..	58.88	43.76	121.28	74.21	14.43
(2) <i>Mental, Psychoneurotic and Personality disorders</i>					
Mental diseases ..	..	..	0.71	1.22	..
(3) <i>Diseases of the Nervous system and sense organs</i>					
ENT diseases ..	..	..	..	..	4.81
Eye diseases other than trachoma ..	6.15	1.43	2.84	2.43	1.60
Total ..	6.15	1.43	2.84	2.43	6.41
(4) <i>Diseases of the Circulatory system</i>					
Rheumatic fever ..	..	..	..	1.22	..
(5) <i>Diseases of the Respiratory system</i>					
Common cold ..	..	1.43	4.96	6.08	1.60
Tonsillitis ..	13.18	1.43	30.50	23.11	4.81
Pharyngitis ..	1.76	0.72	4.25	45.01	..
Influenza ..	0.88	..	..	8.52	..
Other respiratory diseases ..	..	..	..	..	3.20
Total ..	15.82	3.58	39.71	82.72	9.61
(6) <i>Diseases of the Digestive system</i>					
Diarrhoea ..	17.57	4.30	7.80	4.87	4.81
Other digestive diseases ..	14.94	12.91	18.44	19.46	3.20
Total ..	32.51	17.22	26.24	24.33	8.01
(7) <i>Diseases of the Skin and Cellular tissues</i>					
Skin diseases ..	..	..	..	..	12.82

TABLE 35—(Contd.)

Diseases	1941	1942	1943	1944	1945
(8) <i>Symptoms, Senility and Ill-defined conditions</i>					
P.U.O. ..	..	7.17	8.51	6.08	6.41
(9) <i>All other diseases</i> ..	37.79	42.33	82.27	153.28	36.86
(10) <i>All diseases</i> ..	151.14	115.49	281.56	345.50	94.55
(11) <i>Accidents, Poisoning and violence (non-battle injuries)</i>					
Other local injuries ..	7.91	10.76	44.68	45.01	9.61
(12) <i>Accidents, Poisoning and violence (battle injuries)</i>					
Bomb wounds ..	..	2.87	2.84	..	..
Gunshot wounds ..	..	1.43	1.42	1.22	..
Shell wounds ..	..	0.72	0.71	1.22	..
Total ..	..	5.02	4.96	2.43	..
(13) <i>All cases</i> ..	159.05	131.28	331.21	392.94	104.17
(14) <i>Average daily sick</i> ..	5.33	2.16	4.31	11.12	2.40
(15) <i>Deaths</i> ..	0.88	0.72	0.71	..	1.60

TABLE 36

Relative morbidity rates: BORs: Egypt including Syria, Palestine and Cyprus.

Diseases	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>					
Cerebrospinal fever ..	1.16	..	..	..	..
Cholera ..	..	..	..	1.41	..
Diphtheria ..	..	..	0.25	..	..
Dysentery ..	12.21	9.32	5.29	1.41	1.69
Infective hepatitis (jaundice) ..	4.65	2.48	3.02	2.82	3.39
Malaria ..	9.30	5.59	16.37	1.41	5.08
Minor septic diseases ..	7.56	8.69	12.34	5.99	1.69
Mumps ..	..	..	0.25	..	..
Poliomyelitis ..	..	..	..	1.06	..
Sandfly fever ..	..	5.59	1.01	..	..
Scabies ..	0.58	3.10	2.01	5.99	1.69
Tuberculosis ..	0.58	1.24	..	..	..
Trachoma ..	..	..	1.76	0.35	..
Veneral diseases ..	2.91	1.86	0.76	1.06	1.69
Total ..	38.95	37.88	43.07	21.39	15.25
(2) <i>Mental, Psychoneurotic and Personality disorders</i>					
Mental diseases ..	..	..	0.25	0.35	..
(3) <i>Diseases of the Nervous system and sense organs</i>					
ENT diseases ..	..	..	..	..	5.08
Eye diseases other than trachoma ..	4.07	1.24	1.01	0.70	1.69
Total ..	4.07	1.24	1.01	0.70	6.78

TABLE 36—(Contd.)

Diseases	1941	1942	1943	1944	1945
(4) <i>Diseases of the Circulatory system</i>					
Rheumatic fever ..	..	..	..	0.35	..
(5) <i>Diseases of the Respiratory system</i>					
Common cold ..	..	1.24	1.76	1.76	1.69
Tonsillitis ..	8.72	1.24	10.83	6.69	5.08
Pharyngitis ..	1.16	0.62	1.51	13.03	..
Influenza ..	0.58	..	..	2.46	..
Other respiratory diseases	..	..	..	..	3.39
Total ..	10.46	3.10	14.10	23.94	10.16
(6) <i>Diseases of the Digestive system</i>					
Diarrhoea ..	11.63	3.73	2.77	1.41	5.08
Other digestive diseases	9.88	11.18	6.55	5.63	3.39
Total ..	21.51	14.91	9.32	7.04	8.47
(7) <i>Diseases of the Skin and Cellular tissues</i>					
Skin diseases ..	..	..	..	..	13.56
(8) <i>Symptoms, Senility and Ill-defined conditions</i>					
PUO ..	..	6.21	3.02	1.76	6.78
(9) <i>All other diseases</i> ..	25.00	36.64	29.22	44.36	38.98
(10) <i>All diseases</i> ..	100.00	100.00	100.00	100.00	100.00

TABLE 37

Relative casualty rates: BORs: Egypt including Syria, Palestine and Cyprus.

Diseases	1941	1942	1943	1944	1945
(1) Infective and parasitic diseases ..	37.02	33.63	36.61	18.88	13.85
(2) Mental, psychoneurotic and personality disorders ..	..	..	0.21	0.31	..
(3) Diseases of the nervous system and sense organs	3.87	1.09	0.86	0.62	6.15
(4) Diseases of the circulatory system ..	..	..	..	0.31	..
(5) Diseases of the respiratory system ..	9.94	2.43	11.99	21.05	9.22
(6) Diseases of the digestive system ..	20.44	13.11	7.92	6.19	7.69
(7) Diseases of the skin and cellular tissues ..	..	..	..	..	12.31
(8) Symptoms, senility and ill-defined conditions ..	..	5.47	2.57	1.55	6.15
(9) All other diseases ..	23.76	32.23	24.84	39.01	35.39
(10) All diseases ..	95.03	87.97	85.00	87.93	90.77
(11) Non-battle injuries ..	4.97	8.20	13.49	11.45	9.23
(12) Battle injuries ..	..	3.83	1.50	0.62	..
(13) <i>All cases</i> ..	100.00	100.00	100.00	100.00	100.00

TABLE 38

Admissions to Hospitals—Annual rates per 1,000 strength: British officers: Egypt including Syria, Palestine and Cyprus.

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Dengue .. ..	..	..	..	..	1.28	..	1.02
Diphtheria .. ..	..	..	..	1.46	0.64	..	..
Dysentery .. ..	..	3.28	1.94	13.88	6.40	21.60	8.20
Infective hepatitis (Jaundice) .. ..	..	..	2.91	8.03	3.84	4.32	8.20
Malaria .. ..	..	..	1.94	23.37	12.80	24.84	9.22
Minor septic diseases	6.13	..	0.97	21.18	19.21	35.64	6.15
Mumps .. ..	..	..	..	..	3.20	1.08	1.02
Poliomyelitis .. ..	..	..	..	..	..	5.40	..
Sandfly fever .. ..	..	..	..	22.64	14.72	3.24	..
Scabies .. ..	..	..	..	0.73	2.56	1.08	3.07
Smallpox .. ..	..	..	..	..	..	1.08	..
Tuberculosis .. ..	..	..	..	..	..	1.08	2.05
Venereal diseases .. ..	..	..	..	..	0.64	..	1.02
Total	6.13	3.28	7.77	91.31	65.32	99.35	39.96
(2) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases .. ..	..	..	..	2.92	..	1.08	..
(3) <i>Diseases of the Nervous system and sense organs</i>							
ENT diseases .. ..	..	..	..	..	..	..	6.15
Eye diseases other than trachoma .. ..	..	..	..	6.57	2.56	4.32	4.10
Total .. ..	..	..	..	6.57	2.56	4.32	10.25
(4) <i>Diseases of the Circulatory system</i>							
Rheumatic fever .. ..	..	..	..	..	..	..	..
Other circulatory system .. ..	..	..	..	..	..	..	3.07
Total .. ..	..	..	..	..	..	..	3.07
(5) <i>Diseases of the Respiratory system</i>							
Common cold .. ..	..	3.28	..	3.65	2.56	2.16	..
Tonsillitis .. ..	..	..	4.85	14.61	19.21	11.88	7.17
Pharyngitis	12.27	..	0.97	2.92	8.32	1.08	..
Influenza .. ..	..	3.28	..	..	..	1.08	1.02
Pneumonia .. ..	..	3.28	..	..	..	..	1.02
Other respiratory diseases .. ..	..	..	..	..	..	..	5.12
Total	12.27	9.84	5.82	21.18	30.09	16.20	14.34
(6) <i>Diseases of the Digestive system</i>							
Diarrhoea .. ..	..	..	0.97	18.26	8.32	9.72	4.10
Other digestive diseases	6.13	..	..	32.87	31.37	35.64	26.64
Total	6.13	..	0.97	51.13	39.69	45.36	30.74
(7) <i>Diseases of the Skin and Cellular tissues</i>							
Skin diseases .. ..	..	..	..	..	..	..	6.15
(8) <i>Symptoms, Senility and Ill-defined conditions</i>							
NYD fever .. ..	..	..	..	..	..	..	1.02
PUO .. ..	..	..	2.91	18.99	15.36	41.04	16.39
Total .. ..	..	..	2.91	18.99	15.36	41.04	17.41
(9) <i>All other diseases</i>	12.27	..	26.21	130.75	91.55	174.95	64.55
(10) <i>All diseases</i>	36.81	13.11	43.69	322.86	244.56	382.29	186.48
(11) <i>Accidents, Poisoning and violence (non-battle injuries)</i>							
Burns and scalds .. ..	..	..	..	..	..	..	2.05
Other local injuries	24.54	3.28	6.80	44.56	37.13	32.40	44.06
Total	24.54	3.28	6.80	44.56	37.13	32.40	46.11

TABLE 38—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(12) <i>Accidents, Poisoning and violence (battle injuries)</i>							
Bomb wounds ..	..	..	..	2.19	4.48	8.64	..
Gunshot wounds ..	..	3.28	1.94	8.77	12.16	7.56	..
Shell wounds ..	..	..	0.97	2.92	8.32	14.04	..
Total ..	..	3.28	2.91	13.88	24.97	30.24	..
(13) <i>All cases</i> ..	61.35	19.67	53.40	381.30	306.66	444.93	232.58
(14) <i>Average daily sick</i> ..	..	..	4.13	7.22	8.75	12.62	5.48
(15) <i>Deaths</i> ..	..	..	..	1.46	2.56	6.48	..

TABLE 39

Relative morbidity rates: British officers: Egypt including Syria, Palestine and Cyprus.

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Dengue ..	..	..	..	..	0.52	..	0.55
Diphtheria ..	..	..	..	0.45	0.26	..	..
Dysentery ..	..	25.00	4.44	4.30	2.62	5.65	4.40
Infective hepatitis (Jaundice) ..	..	..	6.67	2.49	1.57	1.13	4.40
Malaria ..	..	..	4.44	7.24	5.24	6.50	4.94
Minor septic diseases	16.67	..	2.22	6.56	7.85	9.32	3.30
Mumps ..	..	..	..	..	1.31	0.28	0.55
Poliomyelitis ..	..	..	..	..	..	1.41	..
Sandfly fever ..	..	..	..	7.01	6.02	0.85	..
Scabies ..	..	..	..	0.23	1.05	0.28	1.65
Smallpox ..	..	..	..	..	..	0.28	..
Tuberculosis ..	..	..	..	..	..	0.28	1.10
Veneral diseases ..	..	..	..	..	0.26	..	0.55
Total ..	16.67	25.00	17.78	28.28	26.70	25.99	21.43
(2) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases ..	..	..	..	0.90	..	0.28	..
(3) <i>Diseases of the Nervous system and sense organs</i>							
ENT diseases ..	..	..	..	..	..	..	3.30
Eye diseases other than trachoma ..	..	..	..	2.04	1.05	1.13	2.20
Total ..	..	..	..	2.04	1.05	1.13	5.49
(4) <i>Diseases of the Circulatory system</i>							
Rheumatic fever ..	..	..	..	..	..	..	..
Other circulatory diseases ..	..	..	..	..	..	..	1.65
Total ..	..	..	..	..	..	..	1.65
(5) <i>Diseases of the Respiratory system</i>							
Common cold ..	..	25.00	..	1.13	1.05	0.56	..
Tonsillitis ..	..	..	11.11	4.52	7.85	3.11	3.85
Pharyngitis ..	33.33	..	2.22	0.90	3.40	0.28	..
Influenza ..	..	25.00	..	..	..	0.28	0.55
Pneumonia ..	..	25.00	..	..	..	..	0.55
Other respiratory diseases ..	..	..	..	..	..	..	2.75
Total ..	33.33	75.00	13.33	6.56	12.30	4.24	7.69

(TABLE 39—Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(6) <i>Diseases of the Digestive system</i>							
Diarrhoea ..	..	..	2.22	5.66	3.40	2.54	2.20
Other digestive diseases	16.67	..	..	10.18	12.83	9.32	14.29
Total ..	16.67	..	2.22	15.84	16.23	11.86	16.48
(7) <i>Diseases of the Skin and Cellular tissues</i>							
Skin diseases ..	..	..	..	..	..	..	3.30
(8) <i>Symptoms, Senility and Ill-defined conditions</i>							
NYD fever ..	..	..	..	..	..	..	0.55
PUO ..	..	..	6.67	5.88	6.28	10.73	8.79
Total ..	..	..	6.67	5.88	6.28	10.73	9.34
(9) <i>All other diseases</i> ..	33.33	..	60.00	40.50	37.43	45.76	34.62
(10) <i>All diseases</i> ..	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 40

Admissions to Hospitals—Annual rates per 1,000 strength: Indian troops (all types): Egypt including Syria, Palestine and Cyprus.

Diseases	1939	1940	1941 (Sept. to Dec.)	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever ..	0.31	1.00	0.14	0.71	1.16	0.70	..
Cholera ..	..	..	..	..	..	1.09	0.24
Dengue ..	0.15	..	..	..	0.96	0.04	..
Diphtheria ..	..	0.27	1.07	0.21	0.03	0.82	0.03
Dysentery ..	23.18	28.68	11.57	28.77	9.83	10.15	6.10
Enteric group of fevers	0.15	0.27	..	0.06	0.06	0.14	..
Infective hepatitis (Jaundice) ..	0.77	1.64	1.48	3.64	3.44	2.72	6.10
Malaria ..	20.70	21.76	7.52	26.62	38.21	25.33	10.54
Major septic diseases ..	..	..	..	..	..	..	0.54
Minor septic diseases	22.25	19.67	11.81	32.65	26.04	27.87	18.57
Mumps ..	2.78	0.73	4.12	14.57	3.79	4.72	2.51
Oriental sore ..	0.31	0.09	0.02	0.07	0.04	0.08	0.06
Plague ..	..	..	..	..	..	0.02	..
Poliomyelitis ..	..	..	..	0.06	..	0.58	..
Sandfly fever ..	..	3.82	0.18	7.28	4.60	2.70	0.48
Scabies ..	11.28	18.12	13.33	28.36	9.84	9.23	5.44
Smallpox ..	..	..	0.02	0.05	0.07	0.47	..
Tuberculosis ..	0.31	1.64	0.46	1.78	2.29	1.85	2.00
Trachoma ..	1.08	5.37	1.02	4.58	3.48	3.01	4.66
Typhus fever ..	..	..	..	0.11	1.63	..	..
Veneral diseases ..	27.66	39.42	10.39	24.60	11.03	16.99	32.78
Total ..	110.94	142.49	63.13	174.12	116.50	108.52	90.25
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>							
Scurvy ..	..	..	..	..	..	..	0.06
(3) <i>Diseases of the Blood and Blood forming organs</i>							
Nutritional and other anaemia ..	..	..	..	..	..	..	0.96
(4) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases ..	0.46	2.09	0.93	4.05	3.89	4.88	4.60

TABLE 40—(Contd.)

Diseases	1939	1940	1941 (Sept. to Dec.)	1942	1943	1944	1945
(5) <i>Diseases of the Nervous system and sense organs</i>							
ENT diseases ..	..	..	..	..	..	..	8.37
Eye diseases other than trachoma ..	..	..	7.36	23.97	16.76	15.73	11.42
Total ..	..	..	7.36	23.97	16.76	15.73	19.80
(6) <i>Diseases of the Circulatory system</i>							
Rheumatic fever ..	1.08	0.27	0.23	0.35	0.18	0.16	0.27
Other circulatory diseases ..	..	..	..	..	..	..	1.29
Total ..	1.08	0.27	0.23	0.35	0.18	0.16	1.55
(7) <i>Diseases of the Respiratory system</i>							
Common cold ..	7.42	15.30	5.68	24.01	12.48	11.86	6.64
Tonsillitis ..	5.72	13.11	2.60	7.51	5.41	5.44	5.14
Pharyngitis ..	12.36	21.12	5.26	19.82	12.84	10.81	0.51
Influenza ..	..	0.55	0.04	1.25	0.19	0.53	0.24
Pneumonia ..	1.54	3.91	..	..	..	..	1.55
Other respiratory diseases ..	22.87	33.05	..	..	..	..	8.79
Total ..	49.91	87.04	13.58	52.59	30.92	28.64	22.87
(8) <i>Diseases of the Digestive system</i>							
Diarrhoea ..	17.15	9.56	3.03	22.39	11.03	6.75	6.16
Other digestive diseases	23.79	26.86	8.91	37.17	24.08	25.83	26.29
Total ..	40.95	36.42	11.94	59.55	35.11	32.58	32.45
(9) <i>Diseases of the Skin and Cellular tissues</i>							
Skin diseases ..	..	..	..	..	..	..	20.69
(10) <i>Symptoms, Senility and Ill-defined conditions</i>							
NYD fever ..	..	..	..	..	..	..	1.88
PUO ..	..	0.18	0.16	1.67	1.73	3.46	5.56
Total ..	..	0.18	0.16	1.67	1.73	3.46	7.45
(11) <i>All other diseases</i> ..	81.89	180.19	68.95	181.90	152.05	157.64	87.35
(12) <i>All diseases</i> ..	285.23	448.69	166.27	498.22	357.15	351.63	288.05
(13) <i>Accidents, Poisoning and violence (non-battle injuries)</i>							
Burns and scalds ..	..	..	..	..	..	..	0.54
Other local injuries ..	41.87	45.25	18.02	59.15	57.06	47.99	41.06
Total ..	41.87	45.25	18.02	59.15	57.06	47.99	41.60
(14) <i>Accidents, Poisoning and violence (battle injuries)</i>							
Bomb wounds ..	..	..	2.89	3.52	2.43	0.97	0.12
Gunshot wounds ..	..	..	12.06	14.58	10.85	3.54	0.39
Shell wounds ..	..	..	1.80	6.87	10.83	5.05	0.18
Total ..	..	..	16.75	24.97	24.12	9.56	0.69
(15) <i>All cases</i> ..	327.10	493.95	201.04	582.34	438.33	409.18	330.34
(16) <i>Average daily sick</i> ..	23.82	25.13	4.70	4.21	3.71	7.03	7.96
(17) <i>Deaths</i> ..	0.46	1.27	0.71	2.24	1.59	1.68	2.96

TABLE 41

Relative morbidity rates: Indian troops (all types): Egypt including Syria, Palestine and Cyprus.

Diseases	1939	1940	1941	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever ..	0·11	0·22	0·09	0·14	0·32	0·20	..
Cholera ..	..	..	..	..	..	0·31	0·08
Dengue ..	0·05	..	..	..	0·27	0·01	..
Diphtheria ..	..	0·06	0·64	0·04	0·01	0·23	0·01
Dysentery ..	8·13	6·39	6·96	5·78	2·75	2·89	2·12
Enteric group of fevers	0·05	0·06	..	0·01	0·02	0·04	..
Infective hepatitis	..	..	..	..	..	..	..
(Jaundice) ..	0·27	0·36	0·09	0·73	0·96	0·77	2·12
Malaria ..	7·26	4·85	4·52	5·34	10·70	7·20	3·73
Major septic diseases ..	..	..	..	..	..	..	0·19
Minor septic diseases	7·80	4·38	7·11	6·52	7·29	7·92	6·45
Mumps ..	0·97	0·16	2·48	2·92	1·06	1·34	0·87
Oriental sore ..	0·11	0·02	0·01	0·01	0·01	0·02	0·02
Plague ..	..	..	..	..	..	0·01	..
Poliomyelitis ..	..	..	..	0·01	..	0·16	..
Sandfly fever ..	..	0·85	0·11	1·46	1·29	0·77	0·17
Scabies ..	3·95	4·04	8·02	5·69	2·76	2·62	1·89
Smallpox ..	..	..	0·01	0·01	0·02	0·13	..
Tuberculosis ..	0·11	0·36	0·28	0·36	0·64	0·53	0·70
Trachoma ..	0·38	1·20	0·61	0·92	0·97	0·85	1·62
Typhus fever ..	..	..	..	0·02	0·46	..	..
Venerical diseases ..	9·70	8·79	6·25	4·94	3·09	4·83	11·38
Total ..	38·89	31·75	37·96	34·95	32·61	30·86	31·34
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>							
Beri beri ..	..	..	..	..	..	..	..
Scurvy ..	..	..	..	..	..	..	0·02
Total ..	..	..	..	..	..	..	0·02
(3) <i>Diseases of the Blood and Blood forming organs</i>							
Nutritional and other anaemia ..	..	..	..	..	..	..	0·33
(4) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases ..	0·16	0·47	0·56	0·81	1·09	1·39	1·60
(5) <i>Diseases of the Nervous system and sense organs</i>							
ENT diseases ..	..	..	..	..	..	..	2·91
Eye diseases other than trachoma ..	..	..	4·43	4·81	4·69	4·47	3·97
Total ..	..	..	4·43	4·81	4·69	4·47	6·87
(6) <i>Diseases of the Circulatory system</i>							
Rheumatic fever ..	0·38	0·06	0·14	0·07	0·05	0·05	0·09
Other circulatory diseases ..	..	..	..	..	..	..	0·45
Total ..	..	..	..	..	..	..	0·54
(7) <i>Diseases of the Respiratory system</i>							
Common cold ..	2·60	3·41	3·42	4·82	3·50	3·37	2·30
Tonsillitis ..	2·00	2·92	1·56	1·51	1·51	1·55	1·79
Pharyngitis ..	4·33	4·71	3·16	3·98	3·59	3·07	0·18
Influenza ..	..	0·12	0·02	0·25	0·05	0·15	0·08
Pneumonia ..	0·54	0·87	..	..	..	..	0·54
Other respiratory diseases ..	8·02	7·37	..	..	..	..	3·05
Total ..	17·49	19·40	8·17	10·56	8·66	8·14	7·94

TABLE 41—(Contd.)

[illegible]

TABLE 42

Relative casualty rates: Indian troops (all types): Egypt including Syria, Palestine and Cyprus.

[illegible]

TABLE 43

Admissions to Hospitals—Annual rates per 1,000 strength: British troops (all types): Egypt including Syria, Palestine and Cyprus.

Diseases	1939	1940	1941 (Oct. to Dec.)	1942	1943	1944	1945
(1) <i>Infective and Parasitic Diseases</i>							
Cerebrospinal fever ..	..	..	0.92	..	..	..	..
Cholera ..	..	..	..	..	..	2.27	..
Dengue ..	..	..	..	..	0.67	..	0.62
Diphtheria ..	..	..	..	0.72	0.67	..	..
Dysentery ..	..	3.28	10.55	12.24	10.33	13.60	5.58
Infective hepatitis (Jaundice) ..	..	..	5.05	5.40	6.00	6.80	6.20
Malaria ..	..	..	8.26	14.76	28.32	15.30	7.44
Minor septic diseases	6.13	..	6.42	15.48	26.32	28.33	4.34
Mumps ..	..	..	..	..	2.00	0.57	0.62
Poliomyelitis ..	..	..	..	..	..	4.53	..
Sandfly fever ..	..	..	..	14.40	9.00	1.70	..
Scabies ..	..	..	0.46	2.16	4.00	10.20	2.48
Smallpox ..	..	..	..	..	..	0.57	..
Tuberculosis ..	..	..	0.46	0.72	..	0.57	1.24
Trachoma ..	..	..	..	..	2.33	0.57	..
Venereal diseases ..	..	..	2.29	1.08	1.33	1.70	1.24
Total ..	6.13	3.28	34.40	66.98	90.97	86.50	29.78
(2) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases ..	..	..	..	1.44	0.33	1.13	..
(3) <i>Diseases of the Nervous system and sense organs</i>							
ENT diseases ..	..	..	..	..	..	..	5.58
Eye diseases other than trachoma ..	..	..	3.21	3.96	2.67	3.40	3.10
Total ..	..	..	3.21	3.96	2.67	3.40	8.68
(4) <i>Diseases of the Circulatory system</i>							
Rheumatic fever ..	..	..	..	..	..	0.57	..
Other circulatory diseases ..	..	..	..	..	..	..	1.86
Total ..	..	..	..	..	..	0.57	1.86
(5) <i>Diseases of the Respiratory system</i>							
Common cold ..	..	3.28	..	2.52	3.66	4.15	0.62
Tonsillitis ..	..	..	9.17	7.92	24.32	17.00	6.20
Pharyngitis ..	12.27	..	1.38	1.80	6.33	21.53	..
Influenza ..	..	3.28	0.46	..	..	4.53	0.62
Pneumonia ..	..	3.28	..	..	..	..	0.62
Other respiratory diseases ..	..	..	..	..	..	..	4.34
Total ..	12.27	9.84	11.01	12.24	34.32	47.21	12.41
(6) <i>Diseases of the Digestive system</i>							
Diarrhoea ..	..	..	9.63	11.16	8.00	7.36	4.34
Other digestive diseases	6.13	..	7.80	22.69	24.99	27.76	17.37
Total ..	6.13	..	17.43	33.85	32.99	35.13	21.71
(7) <i>Diseases of the Skin and Cellular tissues</i>							
Skin diseases ..	..	..	..	..	..	..	8.68
(8) <i>Symptoms, Senility and Ill-defined conditions</i>							
NYD fever ..	..	..	..	..	..	..	0.62
PUO ..	..	..	1.38	12.96	12.00	24.36	12.41
Total ..	..	..	1.38	12.96	12.00	24.36	13.03

TABLE 43—(Contd.)

Diseases	1939	1940	1941	1942	1943	1944	1945
(9) <i>All other diseases</i> ..	12.27	..	32.11	85.70	86.30	163.17	53.35
(10) <i>All diseases</i> ..	36.81	13.11	99.54	217.14	259.58	361.47	149.50
(11) <i>Accidents, Poisoning and violence (non-battle injuries)</i>							
Burns and scalds ..	..	..	..	..	..	..	1.24
Other local injuries ..	24.54	3.28	7.34	27.37	40.32	37.96	30.40
Total ..	24.54	3.28	7.34	27.37	40.32	37.96	31.64
(12) <i>Accidents, Poisoning and violence (battle injuries)</i>							
Bomb wounds ..	..	..	..	2.52	3.66	4.53	..
Gunshot wounds ..	..	3.28	0.92	5.04	7.00	4.53	..
Shell wounds ..	..	..	0.46	1.80	4.66	7.93	..
Total ..	..	3.28	1.38	9.36	15.33	17.00	..
(13) <i>All cases</i> ..	61.35	19.67	108.26	253.87	315.23	416.43	181.14
(14) <i>Average daily sick</i> ..	..	..	4.73	4.68	6.58	11.80	4.25
(15) <i>Deaths</i> ..	..	..	0.46	1.08	1.67	3.40	1.24

TABLE 44

Relative morbidity rates: British troops (all types): Egypt including Syria, Palestine and Cyprus.

Diseases	1939	1940	1941 (Oct. to Dec.)	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever ..	..	..	0.92	..	..	0.63	..
Cholera ..	..	..	..	..	0.26	..	0.41
Dengue ..	..	..	..	0.33	0.26	..	..
Diphtheria ..	..	..	..	5.64	3.98	3.76	3.73
Dysentery ..	..	25.00	10.60	..	..	..	..
Infective hepatitis (Jaundice) ..	..	..	5.07	2.49	2.31	1.88	4.14
Malaria ..	..	..	8.29	6.80	10.91	4.23	4.98
Minor septic diseases	16.67	..	6.45	7.13	10.14	7.84	2.90
Mumps ..	..	..	..	..	0.77	0.16	0.41
Poliomyelitis ..	..	..	..	..	..	1.25	..
Sandfly fever ..	..	..	..	6.63	3.47	0.47	..
Scabies ..	..	..	0.46	0.99	1.54	2.82	1.66
Smallpox ..	..	..	..	..	..	0.16	..
Tuberculosis ..	..	..	0.46	0.33	..	0.16	0.83
Trachoma ..	..	..	..	..	0.90	0.16	..
Veneral diseases ..	..	..	2.30	0.50	0.51	0.47	0.83
Total ..	16.67	25.00	34.56	30.85	35.05	23.98	19.91
(2) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases ..	..	..	..	0.66	0.13	0.31	..
(3) <i>Diseases of the Nervous system and sense organs</i>							
ENT diseases ..	..	..	..	..	..	..	3.73
Eye diseases other than trachoma ..	..	..	3.23	1.82	1.03	0.94	2.07
Total ..	..	..	3.23	1.82	1.03	0.94	5.80
(4) <i>Diseases of the Circulatory system</i>							
Rheumatic fever ..	..	..	..	..	..	0.16	..
Other circulatory diseases ..	..	..	..	..	..	..	1.24
Total ..	..	..	..	..	..	0.16	1.24

TABLE 46

Admissions to Hospitals—Annual rates per 1,000 strength: Indian and British troops: Egypt including Syria, Palestine and Cyprus.

Diseases	1939	1940	1941 (Oct. to Dec.)	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever ..	0.30	0.97	0.17	0.68	1.12	0.68	..
Cholera ..	..	..	..	..	..	1.13	0.23
Dengue ..	0.15	..	..	..	0.95	0.04	0.03
Diphtheria ..	..	0.27	1.03	0.22	0.05	0.79	0.03
Dysentery ..	22.61	27.99	11.53	28.22	9.85	10.27	6.08
Enteric group of fevers	0.15	0.27	..	0.06	0.05	0.14	..
Infective hepatitis (Jaundice) ..	0.75	1.60	1.61	3.70	3.52	2.86	6.09
Malaria ..	20.20	21.17	7.55	26.23	37.88	24.98	10.58
Major septic diseases ..	..	..	..	..	..	..	0.51
Minor septic diseases	21.85	19.13	11.61	32.09	26.05	27.88	17.92
Mumps ..	2.71	0.71	3.96	14.09	3.73	4.57	2.42
Oriental sore ..	0.30	0.09	0.02	0.07	0.04	0.08	0.06
Plague ..	..	..	..	..	..	0.02	..
Poliomyelitis ..	..	..	..	0.06	..	0.71	..
Sandfly fever ..	..	3.72	0.17	7.51	4.74	2.66	0.46
Scabies ..	11.00	17.63	12.85	26.33	9.65	9.26	5.31
Smallpox ..	..	..	0.02	0.05	0.07	0.48	..
Tuberculosis ..	0.30	1.59	0.46	1.74	2.21	1.81	1.97
Trachoma ..	1.05	5.23	0.98	4.43	3.44	2.92	4.45
Typhus fever ..	..	..	..	0.11	1.57	..	..
Veneral diseases ..	26.98	38.36	10.09	23.83	10.71	16.46	31.33
Total ..	108.37	138.73	62.05	170.61	115.65	107.75	87.48
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>							
Scurvy ..	..	..	..	..	..	..	0.06
(3) <i>Diseases of the Blood and Blood forming organs</i>							
Nutritional and other anaemia ..	..	..	..	..	..	..	0.91
(4) <i>Mental, Psychoneurotic and Personality disorders</i>							
Mental diseases ..	0.45	2.04	0.89	3.97	3.77	4.75	4.39
(5) <i>Diseases of the Nervous system and sense organs</i>							
ENT diseases ..	..	..	..	..	..	..	8.24
Eye diseases other than trachoma ..	..	..	7.20	23.31	16.30	15.30	11.04
Total ..	..	..	7.20	23.31	16.30	15.30	19.29
(6) <i>Diseases of the Circulatory system</i>							
Rheumatic fever ..	1.05	0.27	0.22	0.34	0.18	0.18	0.26
Other circulatory diseases ..	..	..	..	..	..	..	1.31
Total ..	1.05	0.27	0.22	0.34	0.18	0.18	1.57
(7) <i>Diseases of the Respiratory system</i>							
Common cold ..	7.23	14.97	5.47	23.30	12.19	11.59	6.36
Tonsillitis ..	5.58	12.76	2.85	7.52	6.03	5.84	5.19
Pharyngitis ..	12.36	20.55	5.11	19.23	12.62	11.19	0.48
Influenza ..	..	0.62	0.05	1.21	0.19	0.68	0.26
Pneumonia ..	1.51	3.90	..	..	..	..	1.51
Other respiratory diseases ..	22.31	32.16	..	..	..	..	8.59
Total ..	48.98	84.96	13.48	51.27	31.03	29.30	22.39

TABLE 46—(Contd.)

Diseases	1939	1940	1941 (Oct. to Dec.)	1942	1943	1944	1945
(8) <i>Diseases of the Digestive system</i>							
Diarrhoea ..	16.73	9.30	3.28	22.02	10.93	6.78	6.08
Other digestive diseases	23.36	26.13	8.87	36.69	24.11	25.90	25.88
Total ..	40.09	35.44	12.15	58.71	35.04	32.67	31.95
(9) <i>Diseases of the Skin and Cellular tissues</i>							
Skin diseases ..	..	..	..	..	..	..	20.14
(10) <i>Symptoms, Senility and Ill-defined conditions</i>							
NYD fever ..	..	..	..	..	..	..	1.83
PUO ..	..	0.18	0.21	2.04	2.07	4.19	5.88
Total ..	..	0.18	0.21	2.04	2.07	4.19	7.70
(11) <i>All other diseases</i>	80.19	175.32	67.57	178.73	149.87	157.84	85.79
(12) <i>All diseases</i>	279.13	436.93	163.78	488.99	353.92	351.99	281.69
(13) <i>Accidents, Poisoning and violence (non-battle injuries)</i>							
Burns and scalds ..	..	..	..	..	..	..	0.57
Other local injuries ..	41.45	44.12	17.62	58.11	56.51	47.64	40.57
Total ..	41.45	44.12	17.62	58.11	56.51	47.64	41.14
(14) <i>Accidents, Poisoning and violence (battle injuries)</i>							
Bomb wounds ..	..	..	2.78	3.48	2.48	1.09	0.11
Gunshot wounds ..	..	0.09	11.65	14.27	10.72	3.58	0.37
Shell wounds ..	..	..	1.75	6.70	10.63	5.15	0.17
Total ..	..	0.09	16.18	24.46	23.83	9.82	0.66
(15) <i>All cases</i>	320.57	481.13	197.57	571.56	434.26	409.44	323.48
(16) <i>Average daily sick</i>	23.23	24.45	4.70	4.22	3.37	7.20	7.79
(17) <i>Deaths</i>	0.45	1.24	0.70	2.20	1.60	1.73	2.88

TABLE 47

Relative morbidity rates: Indian and British troops: Egypt including Syria, Palestine and Cyprus.

Diseases	1939	1940	1941 (Oct. to Dec.)	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>							
Cerebrospinal fever ..	0.11	0.22	0.10	0.14	0.32	0.19	..
Cholera ..	..	..	..	..	..	0.32	0.08
Dengue ..	0.05	..	..	..	0.27	0.01	0.01
Diphtheria ..	..	0.06	0.63	0.05	0.01	0.23	0.01
Dysentery ..	8.10	6.41	7.04	5.77	2.78	2.92	2.16
Enteric group of fevers	0.05	0.06	..	0.01	0.01	0.04	..
Infective hepatitis (Jaundice) ..	0.27	0.36	0.98	0.76	0.99	0.81	2.16
Malaria ..	7.23	4.85	4.61	5.36	10.70	7.10	3.76
Major septic diseases ..	..	..	..	..	..	..	0.18
Minor septic diseases ..	7.83	4.38	7.09	6.56	7.36	7.92	6.36
Mumps ..	0.97	0.16	2.42	2.88	1.05	1.30	0.86
Oriental sore ..	0.11	0.02	0.01	0.01	0.01	0.02	0.02
Plague ..	..	..	..	..	..	0.01	..
Poliomyelitis ..	..	..	..	0.01	..	0.20	..
Sandfly fever ..	..	0.85	0.10	1.54	1.34	0.76	0.16

TABLE 47—(Contd.)

[illegible]

Section V

MIDDLE EAST (ALL COMMANDS)

To complete the picture over the whole of the Middle East Commands (comprising Aden, Scotra, Sudan, Eritrea, Egypt, Palestine, Syria, Cyprus, Scydhles Island and PAIFORCE (only March to December 1945)) and to view the total weight of sickness and injury caused to the Indian Army, Tables 49-70 may be seen. To make the picture consistent the four most common years 1942-45 have been brought together in these tables. In the following table are reproduced annual rates of all casualties, average daily sick rate and death rate per 1,000 for each separate category of troops.

Annual rate per 1,000 strength of all causes, average daily sick and deaths.

Troops	1942	1943	1944	1945
<i>All causes</i>				
VCOs & IORs	612.23	455.22	445.60	308.35
Ind. Officers ..	284.62	110.09	36.27	..
NCs(E) ..	537.56	386.43	332.45	286.32
IMNS ..	183.10	236.84	310.34	317.65
Indian troops (all)	591.91	435.99	418.59	303.74
BORs ..	119.92	315.97	392.94	512.57
BOs ..	358.50	301.65	441.71	305.35
MNS(BS) ..	..	..	..	482.34
British troops (all)	235.58	305.59	414.88	462.09
<i>Average daily sick</i>				
VCOs & BORs ..	6.14	4.82	8.62	13.62
Ind. Officers ..	8.08	3.17	0.98	..
NCs(E) ..	5.23	4.44	6.73	14.58
IMNS ..	4.09	7.50	12.07	12.00
Indian troops (all)	5.91	4.72	8.17	13.82
BORs ..	1.99	4.11	11.12	24.67
BOs ..	7.59	9.02	12.62	13.10
MNS(BS) ..	..	..	..	11.76
British troops (all)	4.46	6.63	11.76	21.86
<i>Deaths</i>				
VCOs & IORs ..	2.51	1.78	2.05	2.13
Ind. Officers ..	3.85	..	..	..
NCs(E) ..	1.72	1.01	0.76	1.30
Indian troops (all)	2.31	1.58	1.76	1.96
BORs ..	0.63	0.68	..	1.78
BOs ..	1.31	2.44	6.42	1.30
British troops (all)	0.96	1.59	3.38	1.73

The overall rates for Indian troops varied from 304 in 1945 to 592 in 1942 per 1,000 rendering an average daily sick rate of 6 to 14 per 1,000 respectively. The death rate, however, remained below 2 per 1,000 except in 1942 when it was 2.3 per 1,000.

TABLE 49

*Admissions to Hospitals—Annual rates per 1,000 strength: VCOs and IORs:
Middle East (all Commands).*

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	0.75	1.03	0.71	0.12
	Cholera	0.10	..	1.09	0.15
	Dengue .. ..	..	1.20	0.02	0.14
	Diphtheria	0.21	0.04	0.84	0.08
	Dysentery	29.99	10.28	11.06	8.83
	Enteric group of fevers ..	0.21	0.06	0.15	0.11
	Infective hepatitis ..			..
	(Jaundice)	4.38	3.52	3.32	6.10
	Malaria	40.87	41.85	29.11	21.31
	Major septic diseases ..	..	..	..	0.81
	Minor septic diseases ..	33.98	27.36	30.58	22.30
	Mumps	14.53	3.10	5.32	1.50
	Oriental sore	0.09	0.04	0.10	0.10
	Poliomyelitis	0.13	..	0.53	..
	Sandfly fever	8.17	4.90	2.76	11.98
	Scabies	27.38	9.76	9.81	2.93
	Smallpox	0.06	0.03	0.58	0.03
	Tuberculosis	2.08	2.58	2.13	1.50
	Trachoma	4.56	3.67	3.22	2.26
	Typhus fever	0.12	1.26	..	..
	Venereal diseases	24.05	11.58	17.55	29.76
	Total	191.66	122.27	118.90	110.02
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Scurvy .. ..	..	..	..	0.03
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia .. ..	..	..	..	1.78
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases	4.61	3.78	5.02	2.99
(5)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases	0.07	..	..	6.84
	Eye diseases other than trachoma	23.46	16.58	16.10	7.59
	Total	23.54	16.58	16.10	14.43
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever	0.47	0.22	0.20	0.19
	Other circulatory diseases .. ..	..	..	..	0.96
	Total	0.47	0.22	0.20	1.16

TABLE 49—(Contd.)

Diseases		1942	1943	1944	1945
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	25.15	12.61	12.73	6.14
	Tonsillitis ..	8.74	5.52	5.88	3.57
	Pharyngitis ..	21.13	12.55	11.92	0.15
	Influenza ..	1.28	0.20	0.68	1.24
	Pneumonia ..	0.06	..	..	1.97
	Other respiratory diseases	0.45	0.12	..	9.39
	Total ..	56.80	31.00	31.21	22.46
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	22.74	10.16	7.25	5.55
	Other digestive diseases	38.23	24.15	27.44	27.60
	Total ..	60.97	34.31	34.69	33.15
(9)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases ..	..	..	..	12.23
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	..	5.21
	PUO ..	2.11	1.74	4.03	3.62
	Total ..	2.11	1.74	4.03	8.83
(11)	<i>All other diseases</i> ..	179.85	153.84	169.13	64.82
(12)	<i>All diseases</i> ..	520.01	363.70	379.29	271.89
(13)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Burns and scalds ..	..	..	..	1.51
	Other local injuries ..	64.10	61.34	54.87	34.21
	Total ..	64.10	61.34	54.87	35.73
(14)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Injuries caused by blast	..	..	..	0.05
	Bomb wounds ..	3.85	2.94	1.12	0.05
	Gunshot wounds ..	16.79	13.59	4.26	0.54
	Shell wounds ..	7.49	13.64	6.06	0.08
	Total ..	28.13	30.17	11.44	0.73
(15)	<i>All cases</i> ..	612.23	455.22	445.60	308.35
(16)	<i>Average daily sick</i> ..	6.14	4.82	8.62	13.62
(17)	<i>Deaths</i> ..	2.51	1.78	2.05	2.13

TABLE 50

Relative morbidity rates: VCOs and IORs: Middle East (all Commands).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.14	0.28	0.19	0.05
Cholera	0.02	..	0.29	0.06
Dengue .. ..	..	0.33	0.01	0.05
Diphtheria	0.04	0.01	0.22	0.03
Dysentery	5.77	2.83	2.91	3.26
Enteric group of fevers ..	0.04	0.02	0.04	0.04
Infective hepatitis (Jaundice) ..	0.84	0.97	0.88	2.26
Malaria	7.86	11.51	7.67	7.84
Major septic diseases ..	..	..	..	0.30
Minor septic diseases ..	6.53	7.52	8.06	8.20
Mumps	2.79	0.85	1.40	0.55
Oriental sore	0.02	0.01	0.03	0.03
Poliomyelitis	0.03	..	0.14	..
Sandfly fever	1.57	1.35	0.73	4.41
Scabies	5.26	2.68	2.59	1.08
Smallpox	0.01	0.01	0.15	0.01
Tuberculosis	0.40	0.71	0.56	0.55
Trachoma	0.88	1.01	0.85	0.83
Typhus fever	0.02	0.35	..	..
Venereal diseases ..	4.62	3.18	4.63	10.95
Total	36.85	33.62	31.34	40.47
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Scurvy .. ..	..	..	..	0.01
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0.65
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	0.89	1.04	1.32	1.10
(5) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases	0.01	..	..	2.52
Eye diseases other than trachoma	4.51	4.56	4.24	2.79
Total	4.53	4.56	4.24	5.31
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	0.09	0.06	0.05	0.07
Other circulatory diseases ..	..	..	..	0.35
Total	0.09	0.06	0.05	0.42
(7) <i>Diseases of the Respiratory system</i>				
Common cold	4.84	3.47	3.36	2.26
Tonsillitis	1.68	1.52	1.55	1.31
Pharyngitis	4.06	3.45	3.14	0.06

TABLE 50—(Contd.)

Diseases		1942	1943	1944	1945
	Influenza	0.25	0.05	0.18	0.46
	Pneumonia	0.01	..	..	0.72
	Other respiratory diseases	0.08	0.03	..	3.45
	Total	10.92	8.52	8.23	8.27
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	4.37	2.79	1.91	2.04
	Other digestive diseases	7.35	6.64	7.23	10.15
	Total	11.72	9.43	9.14	12.19
(9)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases .. ..	..	..	..	4.50
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever .. ..	..	..	..	1.91
	PUO	0.41	0.48	1.06	1.33
	Total	0.41	0.48	1.06	3.24
(11)	<i>All other diseases</i> ..	34.58	42.29	44.59	23.84
(12)	<i>All diseases</i>	100.00	100.00	100.00	100.00

TABLE 51

Relative casualty rates: VCOs and IORs: Middle East (all Commands).

Specialist Groups		1942	1943	1944	1945
(1)	Infective and parasitic diseases	31.30	26.86	26.68	35.68
(2)	Allergic, endocrine system, metabolic and nutritional diseases ..	..	..	..	0.01
(3)	Diseases of the blood and blood forming organs	..	..	..	0.58
(4)	Mental, psychoneurotic and personality disorders	0.75	0.83	1.13	0.97
(5)	Diseases of the nervous system and sense organs	3.84	3.64	3.61	4.68
(6)	Diseases of the circulatory system	0.08	0.05	0.04	0.37
(7)	Diseases of the respiratory system	9.28	6.81	7.01	7.28
(8)	Diseases of the digestive system	9.96	7.54	7.78	10.75
(9)	Diseases of the skin and cellular tissues .. ..	..	..	..	3.97
(10)	Symptoms, senility and ill-defined conditions ..	0.34	0.38	0.90	2.86
(11)	All other diseases	29.38	33.79	37.96	21.02
(12)	All diseases	84.94	79.90	85.12	88.18
(13)	Non-battle injuries	10.47	13.47	12.31	11.58
(14)	Battle injuries	4.59	6.63	2.57	0.24
(15)	All cases	100.00	100.00	100.00	100.00

TABLE 52
Absolute and relative morbidity rates: Indian officers: Middle East (all Commands).

Diseases	1942			1943			1944		
	Actual	Relative Rate	Rate per 1,000	Actual	Relative Rate	Rate per 1,000	Actual	Relative Rate	Rate per 1,000
Dengue	..	1.59	3.85	1	2.49	2.29	..	..	..
Diphtheria	..	1.59	3.85	..	..	..	..	..	..
Dysentery	1	4.76	11.54	3	7.46	6.88	1	14.29	2.59
Malaria	3	4.76	11.54	3	7.46	6.88	..	..	..
Minor septic diseases	3	3.17	7.69	..	..	..	..	..	..
Mumps	2	4.76	11.54	..	..	..	..	..	..
Sandfly fever	3	1.59	3.85	1	2.49	2.29	..	..	..
Scabies	..	..	..	..	..	..	..	..	..
Veneral diseases	1	4.76	11.54	1	2.49	2.29	..	..	..
Trachoma	..	1.59	3.85	..	..	..	..	..	..
Eye diseases other than trachoma	3	7.93	19.23	..	..	..	1	14.29	2.59
Mental diseases	1	4.76	11.54	..	..	..	..	..	..
Common cold..	..	1.59	3.85	1	2.49	2.29	..	..	..
Tonsillitis	5	7.93	19.23	1	2.49	2.29	..	..	..
Pharyngitis	3	4.76	11.54	..	..	..	..	..	..
Influenza	1	1.59	3.85	..	..	..	..	..	..
Diarrhoea	2	3.17	7.69	3	7.46	6.88	..	..	..
Other digestive diseases	6	9.52	23.08	9	22.39	20.64	1	14.29	2.59
POU	4	6.35	15.38	..	..	..	..	..	..
All other diseases	24	38.09	92.31	18	44.78	41.28	4	57.14	10.36
All diseases	63	100.00	242.31	41	100.00	94.04	7	100.00	18.13
Local injuries	11	..	42.31	7	..	16.05	7	..	18.13
All cases	74	..	284.62	48	..	110.09	14	..	36.27
Average daily sick	2.10	..	8.08	1.38	..	3.17	0.38	..	0.98
Deaths	1	..	3.85	..	..	..	..	..	..

TABLE 53

Admissions to Hospitals—Annual rates per 1,000 strength: NCs(E): Middle East (all Commands).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.51	1.31	0.66	..
Cholera	0.04	..	0.94	0.05
Dengue	0.04	..	0.09	0.16
Diphtheria	0.08	..	0.66	0.10
Dysentery	22.47	8.92	9.73	8.41
Enteric group of fevers ..	0.13	0.04	0.09	0.16
Infective hepatitis (Jaundice) ..	2.87	3.34	0.85	3.79
Malaria	19.04	25.30	15.30	13.91
Major septic diseases ..	..	..	..	0.57
Minor septic diseases ..	28.05	21.74	21.26	19.04
Mumps	13.29	5.24	2.64	1.56
Oriental sore	0.08	0.04	..	0.10
Plague .. ..	..	..	0.09	..
Poliomyelitis .. ..	..	..	0.66	..
Sandfly fever	1.97	2.79	2.08	11.42
Scabies	25.22	9.01	6.90	2.39
Smallpox	0.04	0.17	..	..
Tuberculosis	1.28	1.52	1.04	1.14
Trachoma	4.12	3.38	3.02	1.82
Typhus fever	0.08	2.36	..	..
Venereal diseases	45.24	16.79	22.48	48.67
Total	164.59	102.00	88.52	113.27
(2) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	1.19
(3) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases	2.74	3.73	3.78	2.28
(4) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases .. ..	..	..	..	5.19
Eye diseases other than trachoma	24.66	17.59	18.71	7.21
Total	24.66	17.59	18.71	12.40
(5) <i>Diseases of the Circulatory system</i>				
Rheumatic fever	0.17	0.08	..	0.10
Other circulatory diseases ..	..	..	..	0.52
Total	0.17	0.08	..	0.62
(6) <i>Diseases of the Respiratory system</i>				
Common cold	19.60	13.36	10.30	6.90
Tonsillitis	7.37	5.28	4.25	2.44

TABLE 53—(Contd.)

Diseases		1942	1943	1944	1945
	Pharyngitis ..	19.90	14.89	9.07	0.31
	Influenza	0.77	0.17	0.28	0.21
	Pneumonia .. ..	..	..	..	2.02
	Other respiratory diseases	0.94	..	0.47	9.08
	Total	48.59	33.70	24.38	20.96
(7)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	16.81	12.86	6.33	7.06
	Other digestive diseases	34.82	24.27	27.49	23.40
	Total	51.63	37.13	33.82	30.46
(8)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases .. ..	..	..	..	10.84
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever .. ..	..	..	..	6.23
	PUO	0.68	1.44	2.74	3.11
	Total	0.68	1.44	2.74	9.34
(10)	<i>All other diseases</i>	190.54	147.63	135.28	65.95
(11)	<i>All diseases</i>	483.61	343.30	307.23	267.33
(12)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Burns and scalds .. ..	..	..	..	1.82
	Other local injuries	47.13	40.94	23.90	17.12
	Total	47.13	40.94	23.90	18.94
(13)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Bomb wounds	1.37	0.46	0.28	0.05
	Gunshot wounds	3.00	0.72	0.47	..
	Shell wounds	2.44	1.01	0.57	..
	Total	6.81	2.20	1.32	0.05
(14)	<i>All cases</i>	537.56	386.43	332.45	286.32
(15)	<i>Average daily sick</i>	5.23	4.44	6.73	14.58
(16)	<i>Deaths</i>	1.72	1.01	0.76	1.30

TABLE 54

Relative morbidity rates: NCs(E): Middle East (all Commands).

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	0.11	0.38	0.21	..
	Cholera	0.01	..	0.31	0.02
	Dengue	0.01	..	0.03	0.06
	Diphtheria	0.02	..	0.21	0.04
	Dysentery	4.65	2.60	3.17	3.14

TABLE 54—(Contd.)

Diseases		1942	1943	1944	1945
	Enteric group of fevers ..	0.03	0.01	0.03	0.06
	Infective hepatitis (Jaundice) ..	0.59	0.97	0.28	1.42
	Malaria ..	3.94	7.38	4.98	5.21
	Major septic diseases ..	..	..	..	0.21
	Minor septic diseases ..	5.80	6.33	6.92	7.13
	Mumps ..	2.75	1.53	0.86	0.59
	Oriental sore ..	0.02	0.01	..	0.04
	Plague ..	..	..	0.03	..
	Poliomyelitis ..	..	..	0.21	..
	Sandfly fever ..	0.41	0.81	0.68	4.27
	Scabies ..	5.21	2.62	2.24	0.89
	Smallpox ..	0.01	0.05	..	..
	Tuberculosis ..	0.27	0.44	0.34	0.43
	Trachoma ..	0.85	0.98	0.98	0.68
	Typhus fever ..	0.02	0.69	..	..
	Venereal diseases ..	9.35	4.89	7.32	18.22
	Total ..	34.03	29.71	28.82	42.37
(2)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia ..	..	..	..	0.45
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	0.57	1.08	1.23	0.86
(4)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases ..	..	..	..	1.95
	Eye diseases other than trachoma ..	5.10	5.12	6.09	2.71
	Total ..	5.10	5.12	6.09	4.65
(5)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	0.03	0.02	..	0.04
	Other circulatory diseases ..	..	..	..	0.19
	Total ..	0.03	0.02	..	0.23
(6)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	4.05	3.89	3.35	2.58
	Tonsillitis ..	1.52	1.54	1.38	0.91
	Pharyngitis ..	4.11	4.34	2.95	0.12
	Influenza ..	0.16	0.05	0.09	0.08
	Pneumonia ..	..	..	..	0.76
	Other respiratory diseases ..	0.19	..	0.15	3.40
	Total ..	10.04	9.82	7.93	7.84
(7)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	3.48	3.74	2.06	2.64
	Other digestive diseases ..	7.20	7.07	8.95	8.76
	Total ..	10.68	10.81	11.01	11.40

TABLE 54—(Contd.)

Diseases		1942	1943	1944	1945
(8)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases ..	..	..	..	4.06
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	..	2.33
	PUO ..	0.14	0.42	0.89	1.16
	Total ..	0.14	0.42	0.89	3.49
(10)	<i>All other diseases</i> ..	39.39	43.00	44.03	24.78
(11)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 55

Relative casualty rates: NCs(E): Middle East (all Commands).

Specialist Groups		1942	1943	1944	1945
(1)	Infective and parasitic diseases ..	30.62	26.40	26.63	39.56
(2)	Diseases of the blood and blood forming organs ..	..	..	..	0.42
(3)	Mental, psychoneurotic and personality disorders ..	0.51	0.96	1.14	0.80
(4)	Diseases of the nervous system and sense organs	4.59	4.55	5.66	4.33
(5)	Diseases of the circulatory system ..	0.03	0.02	..	0.22
(6)	Diseases of the respiratory system ..	9.04	8.71	7.32	7.32
(7)	Diseases of the digestive system ..	9.61	9.61	10.17	10.64
(8)	Diseases of the skin and cellular tissues ..	..	..	..	3.79
(9)	Symptoms, senility and ill-defined conditions ..	0.13	0.37	0.82	3.26
(10)	<i>All other diseases</i> ..	35.43	38.20	40.74	23.03
(11)	<i>All diseases</i> ..	89.96	88.84	92.41	93.37
(12)	Non-battle injuries ..	8.77	10.59	7.19	6.61
(13)	Battle injuries ..	1.27	0.57	0.40	0.02
(14)	<i>All cases</i> ..	100.00	100.00	100.00	100.00

TABLE 56
Absolute and relative morbidity rates: IMNS: Middle East (all Commands).

Diseases	1942			1943			1944			1945		
	Actual	Relative Rate	Rate per 1,000	Actual	Relative Rate	Rate per 1,000	Actual	Relative Rate	Rate per 1,000	Actual	Relative Rate	Rate per 1,000
Dysentery ..	..	..	..	1	5.88	13.16	..	..	..	1	3.70	11.76
Malaria ..	..	..	..	1	5.88	13.16	1	5.88	17.24	6	22.22	70.59
Minor septic diseases	..	..	..	2	11.76	26.32	..	..	..	..	..	..
Mumps ..	1	9.10	14.08	1	5.88	13.16	..	..	..	..	..	..
Sandfly fever	..	..	..	1	5.88	13.16	..	..	..	2	7.41	23.53
Tuberculosis	..	..	..	..	..	..	1	5.88	17.24	2	7.41	23.53
ENT diseases	..	..	..	..	..	..	..	..	..	1	3.70	11.76
Tonsillitis ..	3	27.27	42.25	3	17.65	39.47	1	5.88	17.24	4	14.81	47.06
Pharyngitis	1	9.10	14.08	..	..	..	..	..	..	1	3.70	11.76
Other respiratory diseases	..	..	..	..	..	..	..	..	..	..	..	..
Other digestive diseases	1	9.10	14.08	2	11.76	26.32	..	..	..	..	..	..
P.U.O ..	..	..	..	2	11.76	26.32	2	11.76	34.48	..	..	..
All other diseases	5	45.45	70.42	4	23.53	52.63	12	70.59	206.90	9	33.33	105.88
All diseases..	11	100.00	154.93	17	100.00	233.68	17	100.00	293.10	27	100.00	317.65
Local injuries	2	..	28.17	1	..	13.16	1	..	17.24	..	..	..
All cases ..	13	..	183.10	18	..	236.84	18	..	310.34	27	..	317.65
Average daily sick	0.29	..	4.09	0.57	..	7.50	0.70	..	12.07	1.02	..	12.00

TABLE 57

Admissions to Hospitals—Annual rates per 1,000 strength: BORs: Middle East (all Commands).

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cholera .. ..	..	..	4.87	..
	Dengue .. ..	..	..	..	0.63
	Diphtheria .. ..	..	0.68	..	0.31
	Dysentery	9.52	14.21	4.87	47.57
	Enteric group of fevers ..	..	..	..	0.63
	Infective hepatitis (Jaundice) ..	2.54	8.12	9.73	7.44
	Malaria	6.34	43.98	4.87	19.28
	Major septic diseases ..	..	..	..	0.63
	Minor septic diseases ..	8.88	33.15	20.68	35.10
	Mumps .. ..	..	0.68	..	0.21
	Poliomyelitis .. ..	..	..	3.65	..
	Sandfly fever	5.71	2.71	..	47.25
	Scabies	3.17	5.41	20.68	0.94
	Tuberculosis	1.27	..	..	0.94
	Trachoma .. ..	..	4.74	1.22	0.10
	Venereal diseases	2.54	2.03	3.65	57.21
	Total	39.97	115.69	74.21	218.26
(2)	<i>Diseases of the Blood and Blood-forming organs</i>				
	Nutritional and other anaemia .. ..	..	..	..	0.94
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases .. ..	..	0.68	1.22	7.65
(4)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases .. ..	..	..	..	16.34
	Eye diseases other than trachoma	1.27	2.71	2.43	4.71
	Total	1.27	2.71	2.43	21.06
(5)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever .. ..	..	..	1.22	0.21
	Other circulatory diseases ..	..	..	..	2.83
	Total .. ..	..	..	1.22	3.04
(6)	<i>Diseases of the Respiratory system</i>				
	Common cold	1.27	4.74	6.08	4.92
	Tonsillitis	1.27	29.09	23.11	10.90
	Pharyngitis	0.63	4.06	45.01	..
	Influenza	0.63	..	8.52	0.10
	Pneumonia .. ..	..	..	..	5.53
	Other respiratory diseases ..	..	..	..	10.48
	Total	3.80	37.89	82.72	31.93

TABLE 57—(Contd.)

Diseases	1942	1943	1944	1945
(7) <i>Diseases of the Digestive system</i>				
Diarrhoea	3.81	7.44	4.87	20.85
Other digestive diseases	11.42	17.59	19.46	38.14
Total	15.23	25.03	24.33	58.99
(8) <i>Diseases of the Skin and Cellular tissues</i>				
Skin diseases .. ..	..	..	..	27.66
(9) <i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever .. ..	..	..	..	7.23
PUO	6.98	8.12	6.08	5.76
Total	6.98	8.12	6.08	12.99
(10) <i>All other diseases</i>	38.07	78.48	153.28	97.97
(11) <i>All diseases</i>	105.33	268.61	345.50	480.51
(12) <i>Accidents, Poisoning and violence (non-battle injuries)</i>				
Burns and scalds .. ..	..	..	..	1.47
Other local injuries	10.15	42.62	45.01	30.28
Total	10.15	42.62	45.01	31.75
(13) <i>Accidents, Poisoning and violence (battle injuries)</i>				
Bomb wounds	2.54	2.71	..	..
Gunshot wounds	1.27	1.35	1.22	0.31
Shell wounds	0.63	0.68	1.22	..
Total	4.44	4.74	2.43	0.31
(14) <i>All cases</i>	119.92	315.97	392.94	512.57
(15) <i>Average daily sick</i>	1.99	4.11	11.12	24.67
(16) <i>Deaths</i>	0.63	0.68	..	1.78

TABLE 58

Relative morbidity rates: BORs: Middle East (all Commands).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cholera .. ..	..	..	1.41	0.13
Dengue .. ..	..	..	..	0.06
Diphtheria .. ..	..	0.25	..	9.90
Dysentery	9.04	5.29	1.41	0.13
Enteric group of fevers .. ..	..	..	..	..
Infective hepatitis (Jaundice)	2.41	3.02	2.82	1.55
Malaria	6.02	16.38	1.41	4.01
Major septic diseases .. ..	..	..	..	0.13
Minor septic diseases	8.43	12.34	5.99	7.30
Mumps .. ..	..	0.25	..	0.04
Poliomyelitis .. ..	..	..	1.06	..

TABLE 58—(Contd.)

Diseases		1942	1943	1944	1945
	Sandfly fever ..	5.42	1.01	..	9.83
	Scabies ..	3.01	2.01	5.99	0.20
	Tuberculosis ..	1.20	..	..	0.20
	Trachoma ..	..	1.76	0.35	0.02
	Venereal diseases ..	2.41	0.76	1.06	11.90
	Total ..	37.96	43.09	21.48	45.41
(2)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia ..	..	..	..	0.20
(3)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	..	0.25	0.35	1.59
(4)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases ..	..	..	..	3.40
	Eye diseases other than trachoma ..	1.20	1.01	0.70	0.98
	Total ..	1.20	1.01	0.70	4.38
(5)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	..	..	0.35	0.04
	Other circulatory diseases ..	..	..	..	0.59
	Total ..	..	..	0.35	0.63
(6)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	1.20	1.76	1.76	1.02
	Tonsillitis ..	1.20	10.83	6.69	2.27
	Pharyngitis ..	0.60	1.51	13.03	..
	Influenza ..	0.60	..	2.46	0.02
	Pneumonia ..	..	..	..	1.15
	Other respiratory diseases ..	..	..	..	2.18
	Total ..	3.61	14.10	23.94	6.64
(7)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	3.61	2.77	1.41	4.34
	Other digestive diseases	10.84	6.55	5.63	7.93
	Total ..	14.46	9.32	7.04	12.27
(8)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases ..	..	..	..	5.75
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	..	1.50
	PUO ..	6.63	3.02	1.76	1.20
	Total ..	6.63	3.02	1.76	2.70
(10)	<i>All other diseases</i>	36.14	29.22	44.37	20.38
(11)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 59

Relative casualty rates: BORs: Middle East (all Commands).

Specialist Groups	1942	1943	1944	1945
(1) Infective and parasitic diseases	33.33	36.62	18.89	42.58
(2) Diseases of the blood and blood forming organs ..	..	..	..	0.18
(3) Mental, psychoneurotic and personality disorders .. ..	..	0.21	0.31	1.49
(4) Diseases of the nervous system and sense organs ..	1.06	0.86	0.62	4.11
(5) Diseases of the circulatory system .. ..	..	..	0.31	0.59
(6) Diseases of the respiratory system	3.18	11.99	21.05	6.23
(7) Diseases of the digestive system	12.70	7.92	6.19	11.51
(8) Diseases of the skin and cellular tissues ..	..	..	..	5.40
(9) Symptoms, senility and ill-defined conditions ..	5.82	2.57	1.55	2.53
(10) All other diseases ..	31.75	24.84	39.01	19.11
(11) All diseases ..	87.83	85.01	87.93	93.74
(12) Non-battle injuries ..	8.47	13.49	11.45	6.19
(13) Battle injuries ..	3.70	1.50	0.62	0.06
(14) All Cases ..	100.00	100.00	100.00	100.00

TABLE 60—(Contd.)

	Diseases	1942		1943		1944		1945	
		Relative Rate	Rate per 1,000	Relative Rate	Rate per 1,000	Relative Rate	Rate per 1,000	Relative Rate	Rate per 1,000
(6)	<i>Diseases of the Respiratory system</i>								
	Common cold ..	1.08	3.28	1.51	3.66	0.56	2.14	0.47	1.30
	Tonsillitis ..	4.96	15.10	7.56	18.28	3.11	11.76	2.14	5.83
	Pharyngitis ..	1.29	3.94	3.27	7.92	0.28	1.07		
	Pneumonia ..	..	..	..	..	..	..	0.83	2.27
	Other respiratory diseases ..	..	..	..	..	..	..	1.78	4.86
	Total ..	7.33	22.32	12.34	29.86	3.95	14.97	5.21	14.26
(7)	<i>Diseases of the Digestive system</i>								
	Diarrhoea ..	5.60	17.07	3.27	7.92	2.54	9.63	6.75	18.48
	Other digestive diseases ..	10.34	31.52	12.34	29.86	9.32	35.29	10.66	29.17
	Total ..	15.95	48.59	15.61	37.78	11.86	44.92	17.42	47.65
(8)	<i>Diseases of the Skin and Cellular tissues</i>								
	Skin diseases ..	..	..	..	..	..	..	2.96	8.10
(9)	<i>Syphilis, Venereal and ill-defined conditions</i>								
	NYD fever ..	..	..	..	..	..	..	1.78	4.86
	PUD ..	5.60	17.07	6.05	14.63	10.73	40.64	3.91	10.70
	Total ..	5.60	17.07	6.05	14.63	10.73	40.64	5.69	15.56
(10)	<i>All other diseases</i>	40.52	123.44	37.53	90.80	45.76	173.26	30.33	82.98
(11)	<i>All diseases</i>	100.00	304.66	100.00	241.93	100.00	378.61	100.00	273.58
(12)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>								
	Burns and scalds ..	..	..	..	..	..	..	..	0.97
	Other local injuries ..	..	41.37	..	35.95	..	33.15	..	30.15
	Total ..	..	41.37	..	35.95	..	33.15	..	31.12
(13)	<i>Accidents, Poisoning and violence (battle injuries)</i>								
	Bomb wounds ..	..	1.97	..	4.27	..	8.56	..	0.65
	Gunshot wounds ..	..	7.88	..	11.58	..	7.49	..	0.65
	Shell wounds ..	..	2.63	..	7.92	..	13.90	..	0.65
	Total ..	..	12.48	..	23.77	..	29.95	..	0.65
	All cases ..	..	358.50	..	301.65	..	441.71	..	305.35
(14)	<i>Average daily sick</i>	..	7.59	..	9.02	..	12.62	..	13.10
(15)	<i>Deaths</i>	..	1.31	..	2.44	..	6.42	..	1.30

TABLE 61

Absolute and relative morbidity rates: MNS(BS): Middle East (all Commands).

Diseases	1945		
	Actual	Relative Rate	Rate per 1,000
Dysentery	11	29.73	129.41
Malaria	1	2.70	11.76
Minor septic diseases	1	2.70	11.76
Sandfly fever	2	5.40	23.53
Tuberculosis	1	2.70	11.76
Nutritional and other anaemia	1	2.70	11.76
ENT diseases	3	8.11	35.29
Tonsillitis	1	2.70	11.76
Diarrhoea	3	8.11	35.29
Other digestive diseases	2	5.40	23.53
PUO	2	5.40	23.53
All other diseases	9	24.32	105.88
All diseases	37	100.00	435.28
Local injuries	4	..	47.06
All cases	41	..	482.34
Average daily sick	2.12	..	24.94
Deaths	1	..	11.76

TABLE 62

Admissions to Hospitals—Annual rates per 1,000 strength: Indian Troops (all types): Middle East (all Commands).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.69	1.09	0.69	0.10
Cholera	0.09	..	1.05	0.13
Dengue	0.01	0.90	0.04	0.14
Diphtheria	0.19	0.03	0.79	0.09
Dysentery	27.97	9.89	10.68	8.74
Enteric group of fevers ..	0.19	0.05	0.14	0.12
Infective hepatitis (Jaundice) ..	3.98	3.45	2.77	5.61
Malaria	35.19	37.48	26.00	19.80
Major septic diseases ..	..	..	..	0.76
Minor septic diseases ..	32.37	25.84	28.36	21.60
Mumps	14.19	3.64	4.72	1.51
Oriental sore	0.09	0.04	0.08	0.10
Plague .. .. .	..	..	0.02	..
Poliomyelitis	0.10	..	0.55	..
Sandfly fever	6.59	4.35	2.60	11.87

TABLE 62—(Contd.)

Diseases		1942	1943	1944	1945
	Scabies	26.73	9.52	9.11	2.82
	Smallpox	0.05	0.06	0.46	0.02
	Tuberculosis	1.87	2.31	1.90	1.45
	Trachoma	4.43	3.58	3.15	2.16
	Typhus fever	0.11	1.53	..	..
	Veneral diseases	29.38	12.84	18.43	33.70
	Total	184.22	116.62	111.54	110.71
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Scurvy .. ..	..	..	..	0.02
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia .. ..	..	..	..	1.65
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases	4.13	3.74	4.72	2.84
(5)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases .. ..	..	..	..	6.50
	Eye diseases other than trachoma	23.77	16.74	16.53	7.50
	Total	23.77	16.74	16.53	14.01
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever	0.39	0.18	0.16	0.17
	Other circulatory diseases .. ..	..	..	..	0.87
	Total	0.39	0.18	0.16	1.04
(7)	<i>Diseases of the Respiratory diseases</i>				
	Common cold	23.64	12.74	12.11	6.30
	Tonsillitis	8.45	5.47	5.51	3.37
	Pharyngitis	20.78	13.07	11.22	0.20
	Influenza	1.16	0.18	0.59	1.02
	Pneumonia	0.04	..	..	1.98
	Other respiratory diseases	0.57	0.09	0.10	9.33
	Total	54.64	31.55	29.53	22.20
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	21.17	10.82	6.99	5.86
	Other digestive diseases	37.30	24.17	27.23	26.70
	Total	58.47	34.99	34.22	32.56
(9)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases .. ..	..	..	..	11.93

TABLE 62—(Contd.)

Diseases		1942	1943	1944	1945
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	..	5.41
	PUO ..	1.78	1.67	3.76	3.51
	Total ..	1.78	1.67	3.76	8.92
(11)	<i>All other diseases</i> ..	182.24	151.65	160.87	65.09
(12)	<i>All diseases</i> ..	509.64	357.17	361.32	270.98
(13)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Burns and scalds ..	..	..	..	1.58
	Other local injuries ..	59.68	55.91	48.05	30.60
	Total ..	59.68	55.91	48.05	32.18
(14)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Injuries caused by blast ..	..	..	..	0.04
	Bomb wounds ..	3.21	2.30	0.93	0.05
	Gunshot wounds ..	13.91	10.25	3.43	0.42
	Shell wounds ..	6.17	10.36	4.85	0.06
	Total ..	22.59	22.91	9.21	0.59
(15)	<i>All cases</i> ..	591.91	435.99	418.59	303.74
(16)	<i>Average daily sick</i> ..	5.91	4.72	8.17	13.82
(17)	<i>Deaths</i> ..	2.31	1.58	1.76	1.96

TABLE 63

Relative morbidity rates: Indian troops (all types): Middle East (all Commands).

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	0.13	0.31	0.19	0.04
	Cholera ..	0.02	..	0.29	0.05
	Dengue ..	0.00	0.25	0.01	0.05
	Diphtheria ..	0.04	0.01	0.22	0.03
	Dysentery ..	5.49	2.77	2.96	3.23
	Enteric group of fevers ..	0.04	0.01	0.04	0.04
	Infective hepatitis (Jaundice) ..	0.78	0.97	0.76	2.07
	Malaria ..	6.90	10.49	7.19	7.31
	Major septic diseases ..	..	..	..	0.28
	Minor septic diseases ..	6.35	7.23	7.85	7.97
	Mumps ..	2.78	1.02	1.30	0.56
	Oriental sore ..	0.02	0.01	0.02	0.04
	Plague ..	..	..	0.00	..
	Poliomyelitis ..	0.02	..	0.15	..

TABLE 63—(Contd.)

Diseases		1942	1943	1944	1945
	Sandfly fever ..	1.29	1.22	0.72	4.38
	Scabies ..	5.24	2.67	2.52	1.04
	Smallpox ..	0.01	0.02	0.13	0.01
	Tuberculosis ..	0.37	0.65	0.53	0.53
	Trachoma ..	0.87	1.00	0.87	0.80
	Typhus fever ..	0.02	0.43	..	..
	Venereal diseases ..	5.77	3.59	5.10	12.44
	Total ..	36.14	32.65	30.87	40.86
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Scurvy ..	..	..	..	0.01
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia ..	..	..	..	0.61
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases ..	0.81	1.05	1.30	1.05
(5)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases ..	..	..	..	2.40
	Eye diseases other than trachoma ..	4.66	4.69	4.57	2.77
	Total ..	4.66	4.69	4.57	5.17
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever ..	0.08	0.05	0.04	0.06
	Other circulatory diseases ..	..	..	..	0.32
	Total ..	0.08	0.05	0.04	0.38
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	4.64	3.57	3.35	2.32
	Tonsillitis ..	1.66	1.53	1.52	1.24
	Pharyngitis ..	4.08	3.66	3.11	0.07
	Influenza ..	0.23	0.05	0.16	0.38
	Pneumonia ..	0.01	..	..	0.73
	Other respiratory diseases ..	0.11	0.02	0.03	3.44
	Total ..	10.72	8.83	8.17	8.19
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	4.15	3.03	1.94	2.16
	Other digestive diseases ..	7.32	6.77	7.53	9.85
	Total ..	11.47	9.80	9.47	12.01
(9)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases ..	..	..	..	4.40

TABLE 63—(Contd.)

Diseases		1942	1943	1944	1945
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	..	2.00
	PUO ..	0.35	0.47	1.04	1.30
	Total ..	0.35	0.47	1.04	3.30
(11)	<i>All other diseases</i> ..	35.76	42.46	44.52	24.02
(12)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 64

Relative casualty rates: Indian troops (all types): Middle East (all Commands).

Specialist Groups		1942	1943	1944	1945
(1)	Infective and parasitic diseases ..	31.12	26.75	26.62	36.45
(2)	Allergic, endocrine system, metabolic and nutritional diseases ..	..	..	..	0.01
(3)	Diseases of the blood and blood forming organs ..	..	..	..	0.54
(4)	Mental, psychoneurotic and personality disorders ..	0.70	0.86	1.13	0.93
(5)	Diseases of the nervous system and sense organs	4.02	3.84	3.95	4.61
(6)	Diseases of the circulatory system ..	0.07	0.04	0.04	0.34
(7)	Diseases of the respiratory system ..	9.23	7.23	7.08	7.30
(8)	Diseases of the digestive system ..	9.88	8.02	8.17	10.72
(9)	Diseases of the skin and cellular tissues ..	..	..	..	3.93
(10)	Symptoms, senility and ill-defined conditons ..	0.30	0.38	0.90	2.94
(11)	All other diseases ..	30.78	34.79	38.43	21.43
(12)	All diseases ..	86.10	81.92	86.32	89.21
(13)	Non-battle injuries ..	10.08	12.82	11.48	10.59
(14)	Battle injuries ..	3.82	5.26	2.20	0.19
(15)	All cases ..	100.00	100.00	100.00	100.00

TABLE 65

Admissions to Hospitals—Annual rates per 1,000 strength: British troops (all types): Middle East (all Commands).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cholera .. ..	..	..	2.25	..
Dengue .. ..	..	0.64	..	0.86
Diphtheria	0.64	0.64	..	0.24
Dysentery	11.22	9.85	13.53	41.69
Enteric group of fevers ..	..	..	..	0.55
Infective hepatitis (Jaundice) ..	5.13	5.72	6.76	6.92
Malaria	14.10	27.64	15.22	17.54
Major septic diseases ..	..	..	..	0.71
Minor septic diseases ..	13.78	26.05	28.18	30.04
Mumps .. ..	..	1.91	0.56	0.24
Poliomyelitis .. ..	..	..	4.51	..
Sandfly fever	12.82	8.58	1.69	39.96
Scabies	1.92	3.81	10.15	0.94
Smallpox .. ..	..	..	0.56	..
Tuberculosis	0.64	..	0.56	1.18
Trachoma .. ..	..	2.22	0.56	0.08
Typhus fever .. ..	..	..	..	0.08
Venereal diseases	1.28	1.59	1.69	44.28
Total	61.54	88.63	86.24	185.31
(2) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0.86
(3) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases	1.28	0.32	1.13	6.45
(4) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases .. ..	..	..	..	15.65
Eye diseases other than trachoma	3.53	2.86	3.38	4.17
Total	3.53	2.86	3.38	19.82
(5) <i>Diseases of the Circulatory system</i>				
Rheumatic fever .. ..	..	..	0.56	0.16
Other circulatory diseases ..	..	..	..	2.67
Total .. ..	..	..	0.56	2.83
(6) <i>Diseases of the Respiratory system</i>				
Common cold	2.24	4.13	3.95	4.01
Tonsillitis	8.01	23.19	16.91	9.67
Pharyngitis	2.24	6.04	21.42	..
Influenza	0.32	..	4.51	0.24
Pneumonia .. ..	..	..	..	4.72

TABLE 65—(Contd.)

Diseases		1942	1943	1944	1945
Other respiratory diseases		..	..	..	9.04
Total		12.81	33.35	46.79	27.68
(7)	<i>Diseases of the Digestive system</i>				
Diarrhoea		10.26	7.62	7.33	20.37
Other digestive diseases		21.15	23.82	27.62	35.87
Total		31.41	31.44	34.95	56.24
(8)	<i>Diseases of the Skin and Cellular tissues</i>				
Skin diseases ..		..	..	..	22.73
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>				
NYD fever ..		..	..	..	6.61
PUO		11.86	11.44	24.24	7.08
Total		11.86	11.44	24.24	13.69
(10)	<i>All other diseases</i> ..	79.49	84.18	162.34	94.38
(11)	<i>All diseases</i> ..	201.92	252.22	359.64	430.00
(12)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
Burns and scalds ..		..	..	..	1.34
Other local injuries ..		25.32	38.75	38.33	30.36
Total		25.32	38.75	38.33	31.70
(13)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
Bomb wounds ..		2.24	3.49	4.51	..
Gunshot wounds ..		4.49	6.67	4.51	0.39
Shell wounds ..		1.60	4.45	7.89	..
Total		8.33	14.61	16.91	0.39
(14)	<i>All cases</i> ..	235.58	305.59	414.88	462.09
(15)	<i>Average daily sick</i> ..	4.46	6.63	11.76	21.86
(16)	<i>Deaths</i> ..	0.96	1.59	3.38	1.73

TABLE 66

Relative morbidity rates: British Troops (all types): Middle East (all Commands).

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
Cholera .. ..		..	..	0.63	..
Dengue .. ..		..	0.25	..	0.20
Diphtheria		0.32	0.25	..	0.05
Dysentery		5.56	3.90	3.76	9.69
Enteric group of fevers ..		..	..	..	0.13
Infective hepatitis (Jaundice) ..		2.54	2.27	1.88	1.61
Malaria		6.98	10.96	4.23	4.08

TABLE 66—(Contd.)

Diseases	1942	1943	1944	1945
Major septic diseases ..	..	..	..	0.16
Minor septic diseases ..	6.82	10.33	7.84	6.99
Mumps ..	..	0.76	0.16	0.05
Poliomyelitis ..	..	..	1.25	..
Sandfly fever ..	6.35	3.40	0.47	9.29
Scabies ..	0.95	1.51	2.82	0.32
Smallpox ..	..	..	0.16	..
Tuberculosis ..	0.32	..	0.16	0.27
Trachoma ..	..	0.88	0.16	0.02
Typhus fever ..	..	..	..	0.02
Venereal diseases ..	0.63	0.63	0.47	10.30
Total ..	30.48	35.13	23.98	43.09
(2) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia ..	..	..	..	0.20
(3) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases ..	0.63	0.13	0.31	1.50
(4) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases ..	..	..	..	3.64
Eye diseases other than trachoma ..	1.75	1.13	0.94	0.97
Total ..	1.75	1.13	0.94	4.61
(5) <i>Diseases of the Circulatory system</i>				
Rheumatic fever ..	..	..	0.16	0.04
Other circulatory diseases ..	..	..	..	0.62
Total ..	..	..	0.16	0.66
(6) <i>Diseases of the Respiratory system</i>				
Common cold ..	1.11	1.64	1.10	0.93
Tonsillitis ..	3.97	9.19	4.70	2.25
Pharyngitis ..	1.11	2.39	5.96	..
Influenza ..	0.16	..	1.25	0.05
Pneumonia ..	..	..	..	1.10
Other respiratory diseases ..	..	..	..	2.10
Total ..	6.35	13.22	13.01	6.43
(7) <i>Diseases of the Digestive system</i>				
Diarrhoea ..	5.08	3.02	2.04	4.74
Other digestive diseases ..	10.48	9.44	8.78	8.34
Total ..	15.56	12.47	10.82	13.08
(8) <i>Diseases of the Skin and Cellular tissues</i>				
Skin diseases ..	..	..	..	5.29

TABLE 66—(Contd.)

Diseases		1942	1943	1944	1945
(9)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever .. ..	..	..	..	1.54
	PUO	5.87	4.53	7.84	1.65
	Total	5.87	4.53	7.84	3.19
(10)	<i>All other diseases</i> ..	39.37	33.37	45.14	21.94
(11)	<i>All diseases</i>	100.00	100.00	100.00	100.00

TABLE 67

Relative casualty rates: British troops (all types): Middle East (all Commands).

Specialist Groups		1942	1943	1944	1945
(1)	Infective and parasitic diseases	26.12	29.00	20.79	40.10
(2)	Diseases of the blood and blood forming organs ..	..	..	..	0.19
(3)	Mental, psychoneurotic and personality disorders	0.54	0.10	0.27	1.40
(4)	Diseases of the nervous system and sense organs	1.50	0.94	..	4.29
(5)	Diseases of the circulatory system .. ..	..	..	0.14	0.61
(6)	Diseases of the respiratory system	5.44	10.91	11.28	5.99
(7)	Diseases of the digestive system	13.33	10.29	8.42	12.17
(8)	Diseases of the skin and cellular tissues ..	..	..	..	4.92
(9)	Symptoms, senility and ill-defined conditions ..	5.03	3.74	5.84	2.93
(10)	All other diseases ..	33.74	27.55	39.13	20.43
(11)	All diseases	85.71	82.54	86.68	93.05
(12)	Non-battle injuries ..	10.75	12.68	9.24	6.86
(13)	Battle injuries	3.54	4.78	4.08	0.09
(14)	All cases	100.00	100.00	100.00	100.00

TABLE 68

Relative morbidity rates: Indian and British Troops (all types): Middle East (all Commands).

Diseases	1942	1943	1944	1945
(1) <i>Infective and Parasitic diseases</i>				
Cerebrospinal fever ..	0.13	0.30	0.18	0.03
Cholera	0.02	..	0.30	0.04
Dengue	0.00	0.25	0.01	0.08
Diphtheria	0.04	0.01	0.21	0.04
Dysentery	5.49	2.79	2.98	4.39
Enteric group of fevers ..	0.04	0.01	0.04	0.06
Infective hepatitis (Jaundice) ..	0.81	1.00	0.80	1.99
Malaria	6.90	10.50	7.09	6.73
Major septic diseases ..	..	..	..	0.26
Minor septic diseases ..	6.36	7.31	7.85	7.79
Mumps	2.75	1.01	1.27	0.47
Oriental sore	0.02	0.01	0.02	0.03
Plague .. ..	..	..	0.00	..
Poliomyelitis	0.02	..	0.19	..
Sandfly fever	1.36	1.27	0.71	5.26
Scabies	5.19	2.64	2.53	0.89
Smallpox	0.01	0.02	0.13	0.01
Tuberculosis	0.37	0.63	0.51	0.49
Trachoma	0.86	1.00	0.85	0.66
Typhus fever	0.02	0.42	..	0.00
Venereal diseases	5.70	3.53	4.94	12.05
Total	36.07	32.71	30.64	41.26
(2) <i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
Beri beri .. ..	..	..	..	0.01
(3) <i>Diseases of the Blood and Blood forming organs</i>				
Nutritional and other anaemia .. ..	..	..	..	0.54
(4) <i>Mental, Psychoneurotic and Personality disorders</i>				
Mental diseases	0.81	1.03	1.27	1.13
(5) <i>Diseases of the Nervous system and sense organs</i>				
ENT diseases .. ..	..	..	..	2.62
Eye diseases other than trachoma	4.62	4.60	4.45	2.44
Total	4.62	4.60	4.45	5.07
(6) <i>Diseases of the Circulatory system</i>				
Rheumatic fever	0.08	0.05	0.05	0.06
Other circulatory diseases ..	..	..	..	0.37
Total	0.08	0.05	0.05	0.43

TABLE 68—(Contd.)

Diseases		1942	1943	1944	1945
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold ..	4.59	3.52	3.27	2.07
	Tonsillitis ..	1.69	1.71	1.63	1.42
	Pharyngitis ..	4.04	3.63	3.20	10.06
	Influenza ..	0.23	0.05	0.20	0.32
	Pneumonia ..	0.01	..	..	0.80
	Other respiratory diseases	0.11	0.02	0.03	3.20
	Total ..	10.66	8.93	8.33	7.87
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea ..	4.17	3.03	1.94	2.63
	Other digestive diseases	7.36	6.83	7.54	9.58
	Total ..	11.53	9.86	9.48	12.21
(9)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases ..	..	..		4.56
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	..	1.64
	PUO ..	0.42	0.56	1.23	1.36
	Total ..	0.42	0.56	1.23	3.00
(11)	<i>All other diseases</i> ..	35.80	42.25	44.54	23.92
(12)	<i>All diseases</i> ..	100.00	100.00	100.00	100.00

TABLE 69

Admissions to Hospitals—Annual rates per 1,000 strength: Indian and British troops (all types): Middle East (all Commands).

Diseases		1942	1943	1944	1945
(1)	<i>Infective and Parasitic diseases</i>				
	Cerebrospinal fever ..	0.67	1.06	0.67	0.09
	Cholera ..	0.08	..	1.09	0.11
	Dengue ..	0.01	0.89	0.04	0.23
	Diphtheria ..	0.20	0.05	0.77	0.10
	Dysentery ..	27.42	9.89	10.78	12.74
	Enteric group of fevers ..	0.18	0.05	0.13	0.17
	Infective hepatitis (Jaundice) ..	4.02	3.50	2.91	5.77
	Malaria ..	34.49	37.16	25.63	19.53
	Major septic diseases ..	..	..	..	0.75
	Minor septic diseases ..	31.76	25.85	28.35	22.62

TABLE 69—(Contd.)

Diseases		1942	1943	1944	1945
	Mumps	13.73	3.58	4.57	1.36
	Oriental sore	0.08	0.04	0.08	0.09
	Plague .. ..	..	..	0.02	..
	Poliomyelitis	0.10	..	0.69	..
	Sandfly fever	6.79	4.49	2.56	15.28
	Scabies	25.91	9.34	9.15	2.59
	Smallpox	0.05	0.06	0.46	0.02
	Tuberculosis	1.83	2.23	1.86	1.41
	Trachoma	4.29	3.54	3.06	1.91
	Typhus fever	0.11	1.48	..	0.01
	Venereal diseases	28.46	12.47	17.86	34.98
	Total	180.17	115.71	110.68	119.77
(2)	<i>Allergic, Endocrine system, Metabolic and Nutritional diseases</i>				
	Beri beri .. ..	..	..	..	0.02
(3)	<i>Diseases of the Blood and Blood forming organs</i>				
	Nutritional and other anaemia .. ..	..	..	..	1.56
(4)	<i>Mental, Psychoneurotic and Personality disorders</i>				
	Mental diseases	4.03	3.63	4.59	3.28
(5)	<i>Diseases of the Nervous system and sense organs</i>				
	ENT diseases .. ..	..	..	..	7.61
	Eye diseases other than trachoma	23.10	16.29	16.08	7.10
	Total	23.10	16.29	16.08	14.71
(6)	<i>Diseases of the Circulatory system</i>				
	Rheumatic fever	0.38	0.18	0.17	0.17
	Other circulatory diseases .. ..	..	..	..	1.09
	Total	0.38	0.18	0.17	1.26
(7)	<i>Diseases of the Respiratory system</i>				
	Common cold	22.93	12.46	11.83	6.02
	Tonsillitis	8.43	6.05	5.90	4.14
	Pharyngitis	20.17	12.84	11.56	0.17
	Influenza	1.13	0.18	0.73	0.93
	Pneumonia	0.04	..	..	2.31
	Other respiratory diseases	0.55	0.08	0.10	9.29
	Total	53.26	31.61	30.11	22.86
(8)	<i>Diseases of the Digestive system</i>				
	Diarrhoea	20.80	10.72	7.01	7.62
	Other digestive diseases	36.72	24.15	27.24	27.81
	Total	57.52	34.87	34.25	35.43

TABLE 69—(Contd.)

Diseases .		1942	1943	1944	1945
(9)	<i>Diseases of the Skin and Cellular tissues</i>				
	Skin diseases ..	..	..	..	13.24
(10)	<i>Symptoms, Senility and Ill-defined conditions</i>				
	NYD fever ..	..	..	..	4.76
	PUO ..	2.12	1.99	4.46	3.94
	Total ..	2.12	1.99	4.46	8.70
(11)	<i>All other diseases</i> ..	178.85	149.45	160.92	69.44
(12)	<i>All diseases</i> ..	499.49	353.74	361.27	290.29
(13)	<i>Accidents, Poisoning and violence (non-battle injuries)</i>				
	Burns and scalds ..	..	..	..	1.55
	Other local injuries ..	58.54	55.35	47.72	30.57
	Total ..	58.54	55.35	47.72	32.12
(14)	<i>Accidents, Poisoning and violence (battle injuries)</i>				
	Injuries caused by blast ..	..	..	..	0.04
	Bomb wounds ..	3.17	2.33	1.05	0.05
	Gunshot wounds ..	12.92	10.14	3.46	0.42
	Shell wounds ..	6.02	10.17	4.96	0.06
	Total ..	22.12	22.64	9.48	0.56
(15)	<i>All cases</i> ..	580.15	431.73	418.47	322.97
(16)	<i>Average daily sick</i> ..	5.86	4.78	82.28	14.80
(17)	<i>Deaths</i> ..	2.26	1.58	1.82	1.93

TABLE 70

Relative casualty rates: Indian and British troops: Middle East (all Commands).

Specialist Groups	1942	1943	1944	1945
(1) Infective and parasitic diseases	31.06	26.80	26.45	37.09
(2) Allergic, endocrine system, metabolic and nutritional diseases ..	..	..	..	0.01
(3) Diseases of the blood and blood forming organs ..	..	..	..	0.48
(4) Mental, psychoneurotic and personality disorders	0.69	0.84	1.10	1.01
(5) Diseases of the nervous system and sense organs ..	3.98	3.77	3.84	4.55
(6) Diseases of the circulatory system	0.07	0.04	0.04	0.39
(7) Diseases of the respiratory system	9.18	7.32	7.20	7.08
(8) Diseases of the digestive system	9.92	8.08	8.18	10.97
(9) Diseases of the skin and cellular tissues .. ..	..	..	..	4.10
(10) Symptoms, senility and ill-defined conditions ..	0.36	0.46	1.07	2.69
(11) All other diseases ..	30.83	34.62	38.45	21.50
(12) All diseases ..	86.10	81.94	86.33	89.88
(13) Non-battle injuries ..	10.09	12.82	11.41	9.94
(14) Battle injuries ..	3.81	5.24	2.26	0.18
(15) All cases	100.00	100.00	100.00	100.00

CHAPTER VII

Medical Ethnography of the different fronts

Section I

INTRODUCTION

There are two ways in which the problem of differential morbidity will be considered in this chapter. First, as shown in annual Tables 1 to 4 wherein race differentials between BORs and VCOs and IORs are given and second, the comparison between the morbidity of Indian troops in India with that abroad (Tables 5 to 10). The figures are based on the preceding chapters, on morbidity in different theatres.

Before proceeding to consider race differentials in some details, it may be stated that (i) in the interest of strict representativeness, comparison has been made between BORs for British troops and VCOs and IORs for the Indian troops; (ii) no information is available about the age composition of the population under consideration; (iii) the differences due to differential locations within the regions compared have not been possible to evaluate; (iv) the criteria of selection and rejection at enlistment between the types of troops compared are known to be different; and (v) it is not possible to say how far the morbidity differences indicated here are the result of the basic diet, acquired immunity or other indigenous environmental agencies.

For the reasons stated above, it would not be correct to attribute the differences observed in these tables to inborn differences between the NATURE of these troops. What, however, could be said is that they do differentiate between diseases which caused greater concern to the medical authorities from those which caused less.

Tables 1 to 4 are based on absolute rates of morbidity. The figures shown are the quotients of British rates based on the corresponding Indian rates. Results of absorbing interest flow from a comparison of race differentials. For instance common cold, mumps, eye diseases, pharyngitis (except in Egypt in 1944) and pneumonia were consistently more prevalent among the VCOs and IORs (hereinafter referred to as Indian troops) than BORs (hereinafter referred to British troops), in all the theatres of war including India. Malaria was more prevalent among the Indian troops in 1942, except in Ceylon; among the British troops in 1943 except in Persia and Iraq; among the British troops in India and Burma and SEAC and among Indian troops in Ceylon, Egypt and Persia and Iraq during 1944 and 1945. Oriental sore had a consistently higher rate among the Indian troops in all the theatres during all the four years under study except 1944 and 1945 when it was higher in the British troops in Burma and SEAC; more particularly in the latter year. Similarly scabies caused higher rates of morbidity among the Indian troops throughout except in the Persia and Iraq Command, in 1942 and 1943 and on the Egyptian front in 1944. Tuberculosis seems to have caused higher sickness rate among the

British troops only in Ceylon during 1944 and 1945 otherwise the Indian troops suffered from it at a greater rate.

Of the foregoing diseases Indian troops seem to be particularly prone to mumps, oriental sore, eye diseases, pharyngitis and pneumonia.

The British troops on the other hand suffered more from the rest of the 25 diseases shown in these tables. Mention in particular may be made of the very high comparative proneness of these troops to dengue, diphtheria, dysentery, enteric group of fevers, sandfly fever, tonsillitis and influenza. It may be mentioned in passing that the diseases which have shown in the foregoing comparatively very high proneness either on the part of the Indian troops or the British troops, were not generally by themselves important causes in the total morbidity picture of these troops.

In terms of absolute rates from all causes with the exception of Egypt, British troops seem to have suffered higher rates throughout, except also in Sudan and Eritrea in 1942.

For mortality the picture fluctuated from front to front. For instance in 1942 there were *pro rata* more deaths among Indian troops in Burma and SEAC and Egypt, but less in India, Ceylon and Persia and Iraq. In 1943, there were more deaths among Indian troops in India and Egypt but less in Burma and SEAC and Ceylon. In 1944, British troops suffered higher mortality in Burma and SEAC but in 1945 greater death rate prevailed among them in Ceylon also.

The rate of average constantly sick remained consistently higher among British troops except in Sudan and Eritrea and Egypt in 1942 and the latter in 1945.

Another way in which these tables would lend themselves to analysis is by looking at each front through the period under consideration. This naturally puts greater emphasis on the disease aspect of this story. On examination it will be found that the picture presented in the preceding paragraphs gets re-emphasised on such a study.

Section II

COMPARATIVE MORBIDITY RATES

Annual figures are given in Tables 5 to 10 in which absolute rates in India have been compared with those in the overseas theatres from different diseases. There are again two ways of looking at this picture. First whether the posting of Indian troops abroad caused them greater sickness and, secondly, which of these fronts was how much more unhealthy.

It may sound curious, though true, that in 1940 Indian troops suffered more for being sent abroad from the following diseases—tonsillitis, pharyngitis, dysentery, scabies, tuberculosis and diarrhoea. In 1941 those diseases were as follows—tonsillitis, dysentery, enteric group of fevers, oriental sore, smallpox, typhus fever, tuberculosis and rheumatic fever; in 1942 they were tonsillitis, pharyngitis, eye diseases, mental diseases, typhus fever, diphtheria and dysentery; in 1943 they were tonsillitis, typhus fever, diphtheria and sandfly fever; in 1944 they were tonsillitis, diphtheria, typhus fever and dysentery; and in 1945 they were tonsillitis, diphtheria, typhus fever and dengue.

If the tables are looked from the overall diseases and casualty rates, death rates and average number daily sick, the average picture of sickness in the overseas theatres does not give the impression of being much worse than the morbidity history of troops in India; except naturally, of course, from injuries due to enemy action and other injuries. Here it would be proper to enter a caveat by stating that the conclusion given above may be due to the fact that perhaps better medical category troops were sent abroad, and, directly or indirectly, some load of those disabled on the overseas fronts, and others, was transferred to the India Command during the course of the war.

The comparative front-wise picture seems to be as follows:—

- (i) Aden remained an unhealthy locality for Indian troops throughout; the diseases with higher rates being tonsillitis, diarrhoea, scabies, venereal diseases, pharyngitis, tuberculosis, eye diseases and dysentery in one year or another.
- (ii) In Egypt the more prominent causes were diphtheria, typhus fever, sandfly fever, tonsillitis, venereal diseases, scabies, dysentery, mental diseases and eye diseases. Specially peculiar to this front were, however, the first four diseases mentioned above. The health of the Indian troops, however, remained highly satisfactory on this front.
- (iii) As in the case of Egypt, the diseases that remained of special significance for Indian troops throughout the war in Persia and Iraq Command were diphtheria, sandfly fever, oriental sore, tonsillitis and typhus. Some of the other diseases, which also caused higher sickness in this theatre were pharyngitis, dysentery, enteric group of fevers, venereal diseases, smallpox, mental diseases, rheumatic fever and influenza. Of course, their intensity varied from year to year in this Command. Despite all this it may be noted that on the whole, Indian troops in Persia and

Iraq Command did not give out a worse health picture than that of the troops in India.

- (iv) The Burma front was peculiarly unhealthy. It is borne out by the figures given in these tables also, where malaria, dysentery, diarrhoea, typhus fever and diphtheria were some of the most acute problems to the health authorities. Typhus and diphtheria, though not in themselves important contributors to total sickness, seemed also to have been germane to this front. Venereal diseases, skin diseases, rheumatic fever, influenza and dengue were some of the other causes from which Indian troops suffered more in Burma & SEAC than in India. In terms of total sickness also this front was specially bad till 1944. The picture, however, gets very greatly brightened up in 1945 when none of the major causes of the sickness remained a problem on this front. The absolute rate from all causes was 27 per cent. lower than in India, in 1945.
- (v) The improving state of the health of the Indian troops in Ceylon may be seen in the available figures from 1942 to 1945. The most peculiar diseases of this terrain were dengue followed by dysentery, diphtheria and typhus fever. Some of the other diseases worth a mention were eye diseases, tonsillitis, tuberculosis and oriental sore. From a 25 per cent. higher rate, the absolute rate from all causes fell down to 101 in 1943; 91 in 1944 and 67 in 1945 against 100 of the corresponding rate for the troops in India.

TABLE 1

Race differentials—BORs and VCOs and IORs in different theatres of war—1942.

Diseases	India	Burma and SEAC	Ceylon	Sudan and Eritrea	Egypt	Persia and Iraq Command.
Common cold ..	0.3	0.8	1.6	..	0.1	0.3
Dengue ..	5.5	15.3	4.7	..	..	..
Diphtheria ..	..	97.3	26.7	..	..	68.0
Dysentery ..	2.5	1.7	1.5	..	0.3	2.9
Enteric group of fevers	4.0	4.8	25.0	..	..	4.0
Malaria ..	0.8	0.7	1.4	0.05	0.2	0.8
Mumps ..	0.05	0.01	0.1	..	..	0.6
Oriental sore ..	0.5	1.0	0.2	..	..	0.4
Sandfly fever ..	4.1	28.0	1.7	..	0.7	5.2
Scabies ..	0.7	0.5	0.3	..	0.1	3.2
Smallpox ..	3.0	2.0	..	..	..	3.6
Tuberculosis ..	0.5	0.5	0.4	..	0.7	0.8
Typhus fever ..	4.0	2.3	..	..	..	2.0
Venereal diseases ..	1.6	1.8	2.4	0.1	0.1	1.3

TABLE 1—(Contd.)

Diseases	India	Burma and SEAC	Ceylon	Sudan and Eritrea	Egypt	Persia and Iraq Command
Mental diseases ..	1.8	1.7	2.0	..	..	1.3
ENT diseases ..	1.9	1.3	..	..	..	..
Eye diseases including trachoma ..	0.4	0.4	0.5	..	0.05	0.6
Rheumatic fever ..	1.6	0.8	1.0	..	..	2.8
Tonsillitis ..	10.2	4.6	6.5	..	0.2	7.3
Pharyngitis ..	0.6	..	0.4	..	0.03	0.5
Influenza ..	2.4	0.3	1.2	..	..	4.0
Pneumonia ..	0.4	0.3	..	..	..	..
Diarrhoea ..	2.5	1.5	1.1	..	0.2	3.1
Skin diseases ..	2.9	3.1	..	..	..	..
PUO ..	3.0	5.0	9.9	1.1	3.8	1.1
All other diseases ..	1.4	1.6	1.0	..	0.3	1.6
All diseases ..	1.3	1.2	1.1	0.02	0.2	1.6
Injuries (NEA) ..	1.8	0.9	1.2	0.1	0.2	1.1
Injuries (EA) ..	3.7	0.1	7.6	..	0.2	0.9
All cases ..	1.3	1.1	1.2	0.03	0.2	1.5
Deaths ..	1.1	0.7	1.1	..	0.3	1.5
Average daily sick ..	1.8	..	15.7	0.1	0.5	1.4

TABLE 2

Race differentials—BORs and VCOs and IORs in different theatres of war—1943.

Diseases	India	Burma and SEAC	Ceylon	Egypt	Persia and Iraq Command
Common cold ..	0.4	0.6	0.2	0.4	0.4
Dengue ..	6.0	61.5	5.1	..	..
Diphtheria ..	130.0	6.0	..	14.0	31.5
Dysentery ..	3.1	3.9	1.1	1.5	1.7
Enteric group of fevers ..	1.4	2.8	3.0	..	2.0
Malaria ..	1.0	1.3	1.3	1.1	0.5
Mumps ..	0.02	0.1	..	0.2	0.1
Oriental sore ..	0.5	1.0	..	..	0.2
Sandfly fever ..	5.0	12.3	0.4	0.5	4.3
Scabies ..	0.5	0.6	0.3	0.6	3.0
Smallpox ..	1.6	1.6	..	..	0.9
Tuberculosis ..	0.4	0.6	0.2	..	0.4
Typhus fever ..	2.5	1.4	1.7	..	0.6

TABLE 2—(Contd.)

Diseases	India	Burma and SEAC	Ceylon	Egypt	Persia and Iraq Command
Venereal diseases ..	1.3	2.4	1.4	0.2	0.8
Mental diseases ..	1.1	2.1	1.3	0.2	1.4
ENT diseases ..	1.5	1.9	..	..	..
Eye diseases including trachoma ..	0.3	0.7	0.5	0.4	0.5
Rheumatic fever ..	1.6	0.6	1.0	..	3.0
Tonsillitis ..	6.7	6.8	3.7	5.5	4.5
Pharyngitis ..	0.6	..	0.4	0.3	0.7
Influenza ..	1.3	2.0	0.8	..	12.0
Pneumonia ..	0.3	..	..	..	..
Diarrhoea ..	1.7	2.8	0.7	0.8	2.3
Skin diseases ..	1.6	2.0	..	..	..
PUO ..	6.3	2.5	4.5	4.7	0.6
All other diseases ..	1.1	1.7	1.0	0.7	1.3
All diseases ..	1.1	1.6	1.2	0.8	1.2
Injuries (NEA) ..	1.3	1.4	1.8	0.7	1.0
Injuries (EA) ..	2.5	1.4	0.6	0.2	0.7
All cases ..	1.1	1.6	1.2	0.7	1.2
Deaths ..	0.7	1.1	1.2	0.4	1.0
Average daily sick	1.4	1.6	13.0	1.2	1.4

TABLE 3

Race differentials—BORs and VCOs and IORs in different theatres of war—1944.

Diseases	India	Burma and SEAC	Ceylon	Egypt	Persia and Iraq Command
Common cold ..	0.3	0.6	0.4	0.5	0.6
Dengue ..	14.4	11.0	3.4	..	50.0
Diphtheria ..	36.7	17.5	39.0	..	26.7
Dysentery ..	4.5	2.4	1.2	0.5	2.9
Enteric group of fevers ..	2.4	4.5	8.0	..	2.3
Malaria ..	1.6	1.3	0.5	0.2	0.6
Mumps ..	0.02	0.04	0.07	..	0.1
Oriental sore ..	0.4	1.3	..	..	0.2
Sandfly fever ..	3.3	7.0	0.7	..	4.1
Scabies ..	0.4	0.6	0.4	2.0	0.7
Smallpox ..	1.3	0.8	2.0	..	1.2
Tuberculosis ..	0.4	0.3	2.0	..	0.6
Typhus fever ..	7.7	2.6	17.5	..	..
Venereal diseases ..	1.5	1.9	1.2	0.2	1.3
Mental diseases ..	2.1	2.4	1.1	0.2	1.8
ENT diseases ..	1.7	1.5	0.8	..	3.8

TABLE 3—(Contd.)

Diseases	India	Burma and SEAC	Ceylon	Egypt	Persia and Iraq Command
Eye diseases including trachoma ..	0.4	0.7	0.5	0.2	0.4
Rheumatic fever ..	1.8	2.0	0.3	6.0	..
Tonsillitis ..	5.2	4.4	2.8	4.0	3.5
Pharyngitis ..	0.4	..	..	3.9	..
Influenza ..	1.3	2.0	1.0	14.2	1.7
Pneumonia ..	0.5	0.3	..	..	..
Diarrhoea ..	2.5	2.3	1.2	7.0	3.3
Skin diseases ..	1.6	1.4	2.7	..	6.7
PUO ..	4.0	4.6	21.0	1.7	1.0
All other diseases ..	1.3	1.5	1.0	0.9	1.2
All diseases ..	1.4	1.5	1.0	0.9	1.4
Injuries (NEA) ..	1.3	1.1	1.1	0.8	1.0
Injuries (EA) ..	0.7	2.3	1.8	0.2	0.5
All cases ..	1.4	1.5	1.0	0.9	1.4
Deaths ..	1.0	1.6	0.9	..	0.8
Average daily sick	1.4	1.3	5.4	1.5	1.5

TABLE 4

Race differentials—BORs and VCOs and IORs in different theatres of war—1945.

Diseases	India	Burma and SEAC	Ceylon	Egypt	Persia and Iraq Command
Common cold ..	0.3	0.7	0.9	0.3	0.6
Dengue ..	19.2	1.6	5.2	..	2.7
Diphtheria ..	28.0	5.0	1.0	..	3.0
Dysentery ..	5.1	3.5	1.6	0.3	4.5
Enteric group of fevers ..	3.5	1.5	..	..	3.5
Malaria ..	1.7	1.9	0.6	0.4	0.7
Mumps ..	0.04	0.1	0.1	..	0.1
Oriental sore ..	0.1	6.7	..	..	..
Sandfly fever ..	7.6	0.6	..	..	77.2
Scabies ..	0.4	0.4	0.4	0.3	0.5
Smallpox ..	1.2	2.7	2.0	..	..
Tuberculosis ..	0.4	0.4	1.3	..	1.0
Typhus fever ..	1.8	0.9	..	..	..
Venereal diseases ..	1.8	1.6	1.7	0.1	1.8
Mental diseases ..	1.9	3.2	1.7	..	2.1
ENT diseases ..	1.9	1.9	0.7	0.6	3.5
Eye diseases including trachoma ..	0.5	0.9	0.5	0.1	0.7
Rheumatic fever ..	1.8	2.0	5.7	..	2.0

TABLE 4—(Contd.)

Diseases	India	Burma and SEAC	Ceylon	Egypt	Persia and Iraq Command
Tonsillitis ..	4.5	5.3	3.3	0.9	4.4
Pharyngitis ..	0.4	..	..	..	..
Influenza ..	0.7	0.6	..	..	0.1
Pneumonia ..	0.4	0.3	..	..	2.5
Diarrhoea ..	2.7	1.9	1.8	0.9	3.5
Skin diseases ..	2.0	2.2	3.2	0.6	4.7
PUO ..	6.0	6.7	..	1.1	1.3
All other diseases ..	1.3	1.6	1.2	0.3	1.4
All diseases ..	1.5	1.7	1.3	0.3	1.7
Injuries (NEA) ..	1.4	1.1	1.1	0.2	1.3
Injuries (EA) ..	0.1	1.7	2.0	..	0.4
All cases ..	1.5	1.6	1.2	0.3	1.6
Deaths ..	0.9	1.4	1.1	0.5	0.8
Average daily sick	1.1	1.6	9.5	0.3	1.5

TABLE 5

Crude comparative morbidity rates—VCOs and IORs in India and VCOs and IORs in overseas theatres—1940.

Diseases	Comparative morbidity Rates; VCOs and IORs—1940			
	India	Aden	Egypt	Persia and Iraq Command
Common cold	100·0	83·4	59·9	..
Dengue	100·0	..	..	..
Diphtheria	100·0	..	100·2	..
Dysentery	100·0	250·2	140·8	..
Enteric group of fevers ..	100·0	85·7	57·1	..
Malaria	100·0	10·2	12·2	33·7
Mumps	100·0	37·6	9·7	..
Oriental sore	100·0	..	20·0	..
Sandfly fever	100·0	..	69·9	164·4
Scabies	100·0	314·9	116·7	57·7
Smallpox	100·0	..	..	..
Tuberculosis	100·0	226·9	57·7	..
Typhus fever	100·0	..	..	..
Venereal diseases	100·0	102·6	164·6	51·3
Mental diseases	100·0	31·6	89·5	..
ENT diseases	100·0	..	..	..
Eye diseases including trachoma	100·0	4·3	39·9	70·3
Rheumatic fever	100·0	..	22·2	..
Tonsillitis	100·0	352·0	238·0	582·0
Pharyngitis	100·0	191·4	109·7	665·7
Influenza	100·0	35·3	11·8	..
Pneumonia	100·0	113·3	43·4	..
Diarrhoea	100·0	447·7	83·5	..
Skin diseases	100·0	..	..	..
PUO	100·0	..	200·0	..
All other diseases	100·0	247·7	182·8	108·2
All diseases	100·0	123·9	84·3	77·3
Injuries (NEA)	100·0	94·9	108·0	85·8
Injuries (EA)	100·0	..	..	..
All cases	100·0	121·1	86·0	77·8
Deaths	100·0	57·1	81·0	..
Average daily sick	100·0	178·9	191·4	78·3

TABLE 6

Crude comparative morbidity rates—VCOs and IORs in India and VCOs and IORs in overseas theatres—1941.

Diseases	Comparative morbidity Rates VCOs and IORs—1941			
	India	Aden	Egypt	Persia and Iraq Command
Common cold	100.0	39.9	17.9	89.9
Dengue	100.0	..	62.5	112.5
Diphtheria	100.0	..	..	31,000.0
Dysentery	100.0	125.1	91.0	165.4
Enteric group of fevers ..	100.0	150.0	16.7	850.0
Malaria	100.0	59.9	8.6	97.6
Mumps	100.0	23.3	22.8	15.5
Oriental sore	100.0	80.0	..	340.0
Sandfly fever	100.0	..	2.0	280.0
Scabies	100.0	93.1	83.4	44.0
Smallpox	100.0	..	..	300.0
Tuberculosis	100.0	291.7	45.8	95.8
Typhus fever	100.0	..	..	700.0
Venereal diseases	100.0	73.9	82.5	233.9
Mental diseases	100.0	39.1	65.2	169.6
ENT diseases	100.0	..	..	..
Eye diseases including trachoma	100.0	128.5	62.0	39.4
Rheumatic fever	100.0	..	62.5	725.0
Tonsillitis	100.0	224.4	153.7	136.6
Pharyngitis	100.0	77.5	63.5	49.6
Influenza	100.0	..	3.9	100.0
Pneumonia	100.0	..	0.8	..
Diarrhoea	100.0	37.1	69.6	89.5
Skin diseases	100.0	..	..	..
PUO	100.0	..	300.0	4,200.0
All other diseases	100.0	146.0	69.2	199.5
All diseases	100.0	84.6	43.7	129.2
Injuries (NEA)	100.0	171.4	57.3	151.0
Injuries (EA)	100.0	400.0	1,26,300.0	5,600.0
All cases	100.0	90.3	65.1	131.4
Deaths	100.0	62.9	68.6	82.9
Average daily sick	100.0	186.0	101.9	118.2

TABLE 7
Crude comparative morbidity rates—VCOs and IORs in India and VCOs and IORs in overseas theatres—1942.

Diseases	Comparative morbidity Rates; VCOs and IORs 1942						
	India	Burma and SEAG	Ceylon	Aden	Sudan and Eritrea	Egypt	Persia and Iraq command
Common cold	100-0	32-1	39-5	83-8	31-9	57-0	66-7
Dengue ..	100-0	119-0	800-0	..	..	..	4-8
Diphtheria	100-0	..	150-0	..	..	500-0	125-0
Dysentery	100-0	264-0	95-0	58-0	130-0	155-0	100-0
Enteric group of fevers	100-0	100-0	25-0	..	500-0	25-0	50-0
Malaria ..	100-0	217-2	94-5	64-4	61-7	14-8	46-0
Mumps ..	100-0	69-6	13-5	93-6	72-3	96-1	14-2
Mucous sore	100-0	33-3	83-3	..	66-7	16-7	283-3
Sandfly fever	100-0	1-6	21-3	..	12-9	146-8	230-6
Scabies ..	100-0	74-6	74-6	20-7	80-3	136-6	24-4
Smallpox	100-0	66-7	33-3	166-7	..	16-7	233-3
Tuberculosis	100-0	72-4	120-7	265-5	41-4	69-0	75-9
Typhus fever	100-0	300-0	300-0	..	200-0	100-0	50-0
Veneral diseases	100-0	92-2	109-6	55-8	138-6	48-0	133-9
Mental diseases	100-0	50-0	90-0	33-3	256-7	150-0	126-7
ENT diseases	100-0	75-5	..	..	..	..	..
Eye diseases including trachoma	100-0	72-9	147-7	125-2	163-9	184-5	109-7
Rheumatic fever	100-0	54-5	9-1	..	127-3	36-4	36-4
Tonsillitis	100-0	68-2	120-5	209-1	425-2	179-5	168-2
Pharyngitis	100-0	..	63-2	109-1	145-0	86-6	155-4
Influenza	100-0	254-3	41-3	..	..	30-4	4-3
Pneumonia	100-0	29-7	..	..	..	..	..
Diarrhoea	100-0	84-7	96-0	25-1	39-1	74-0	64-5
Skin diseases	100-0	65-3	..	..	..	..	..
PUO ..	100-0	820-0	200-0	..	1,020-0	380-0	220-0
All other diseases	100-0	96-2	224-7	154-7	114-3	123-6	137-7
All diseases	100-0	124-2	122-7	87-5	86-4	72-2	85-2
Injuries (NEA)	100-0	95-7	164-8	209-9	152-2	162-0	121-0
Injuries (EA)	100-0	1,867-7	233-3	166-7	800-0	10,466-7	266-7
All cases	100-0	123-3	125-0	94-0	90-2	81-2	87-2
Deaths ..	100-0	156-0	38-0	48-0	52-0	50-0	64-0
Average daily sick	100-0	..	16-7	206-9	33-5	17-5	125-3

TABLE 8

Crude comparative morbidity rates—VCOs and IORs in India and VCOs and IORs in overseas theatres—1943.

Diseases	Comparative morbidity Rates: VCOs and IORs 1943						
	India	Burma and SEAC	Ceylon	Aden	Sudan and Eritrea	Egypt	Persia and Iraq command
Common cold	100.0	85.4	22.2	35.6	40.4	30.6	68.4
Dengue ..	100.0	28.6	757.1	..	..	92.8	1.4
Diphtheria	100.0	2,000.0	..	..	..	500.0	2,000.0
Dysentery	100.0	210.0	142.5	88.1	38.1	63.8	104.4
Enteric group of fevers	100.0	100.0	20.0	..	..	12.0	60.0
Malaria ..	100.0	252.2	98.1	19.7	3.9	22.2	58.2
Mumps ..	100.0	30.1	5.5	6.8	9.6	21.9	50.7
Oriental sore	100.0	100.0	100.0	..	..	25.0	200.0
Sandfly fever	100.0	12.5	45.8	..	29.2	216.7	687.5
Scabies ..	100.0	101.5	58.8	16.2	17.6	37.1	16.5
Smallpox	100.0	100.0	20.0	..	..	6.0	160.0
Tuberculosis	100.0	48.3	344.8	127.6	48.3	89.7	82.8
Typhus fever	100.0	500.0	150.0	67.4	93.0	700.0	350.0
Veneral diseases	100.0	132.2	89.5	22.7	31.8	88.5	77.3
Mental diseases	100.0	65.9	65.9	..	..	..	..
ENT diseases	100.0	89.7	..	..	..	..	..
Eye diseases including trachoma	100.0	90.7	75.0	116.2	72.2	93.1	80.6
Rheumatic fever	100.0	155.6	22.2	..	77.8	22.2	33.3
Tonsillitis	100.0	87.5	102.5	135.0	152.5	137.5	242.5
Pharyngitis	100.0	..	42.6	117.9	58.6	75.9	134.6
Influenza	100.0	84.4	15.6	..	..	6.2	9.1
Pneumonia	100.0	108.6	86.0	32.7	10.5	40.5	73.9
Diarrhoea	100.0	111.9	..	..	..	..	..
Skin diseases	100.0	425.0	75.0	10.7	71.4	64.3	207.1
PUO	100.0	137.4	156.1	105.2	58.8	95.6	124.1
All other diseases	100.0	132.5	99.9	56.9	35.6	51.8	83.1
All diseases	100.0	118.1	122.0	112.7	75.5	162.5	128.7
Injuries (NEA)	100.0	24,750.0	2,000.0	14,250.0	..	80,000.0	3,250.0
Injuries (EA)	100.0	152.0	101.2	60.5	37.9	61.9	85.6
All cases ..	100.0	129.3	56.1	31.7	17.1	43.9	58.5
Deaths ..	100.0	137.2	13.4	99.0	13.7	12.4	100.3
Average daily sick	..	..	..	..	..	..	..

TABLE 9

Crude comparative morbidity rates—VCOs and IORs in India and VCOs and IORs in overseas theatres—1944.

Diseases	Comparative morbidity Rates: VCOs and IORs 1944					
	India	Burma and SEAC	Ceylon	Aden	Egypt	Persia and Iraq Command
Common cold ..	100.0	83.0	66.2	46.8	31.8	44.3
Dengue ..	100.0	30.8	1,215.4	..	23.1	7.7
Diphtheria ..	100.0	133.3	333.3	..	3,000.0	100.0
Dysentery ..	100.0	246.9	153.1	125.3	66.0	137.7
Enteric group of fevers ..	100.0	40.0	20.0	..	40.0	60.0
Malaria ..	100.0	200.3	91.2	26.2	17.9	32.2
Mumps ..	100.0	36.5	11.1	14.3	43.7	24.6
Oriental sore ..	100.0	30.0	500.0	..	100.0	500.0
Sandfly fever ..	100.0	4.3	69.6	..	126.1	687.0
Scabies ..	100.0	70.5	30.4	9.3	30.4	13.9
Smallpox ..	100.0	66.7	11.1	..	66.7	66.7
Tuberculosis ..	100.0	44.8	59.0	127.6	72.4	103.4
Typhus fever ..	100.0	700.0	66.7	..	..	6.7
Venereal diseases ..	100.0	74.4	81.6	95.7	33.4	78.5
Mental diseases ..	100.0	78.0	78.0	..	88.1	67.8
ENT diseases ..	100.0	57.8	82.0	..	..	9.5
Eye diseases including						
trachoma ..	100.0	70.8	62.9	195.0	91.1	57.4
Rheumatic fever ..	100.0	50.0	66.7	..	33.3	..
Tonsillitis ..	100.0	60.0	92.0	160.0	116.0	136.0
Pharyngitis ..	100.0	..	..	126.0	57.0	..
Influenza ..	100.0	31.3	12.5	156.3	37.5	37.5
Pneumonia ..	100.0	26.7	..	..	..	..
Diarrhoea ..	100.0	189.4	67.0	61.7	33.9	48.3
Skin diseases ..	100.0	83.4	65.3	..	..	10.6
PUO ..	100.0	129.4	5.9	723.5	217.8	511.8
All other diseases ..	100.0	152.4	114.0	50.9	103.0	105.7
All diseases ..	100.0	132.6	89.3	50.8	54.1	65.5
Injuries (NEA) ..	100.0	107.4	115.7	114.3	123.3	103.8
Injuries (EA) ..	100.0	4,966.7	44.4	66.6	1,322.2	111.1
All cases ..	100.0	137.0	90.8	82.0	59.9	67.9
Deaths ..	100.0	200.0	57.6	148.5	57.6	87.9
Average daily sick ..	100.0	77.9	12.7	79.3	17.3	62.2

TABLE 10

Crude comparative morbidity rates—VCOs and IORs in India and VCOs and IORs in overseas theatres—1945.

Diseases	Comparative morbidity Rates: VCOs and IORs 1945					
	India	Burma and SEAC	Ceylon	Aden	Egypt	Persia and Iraq Command
Common cold ..	100.0	55.4	25.8	38.8	18.5	31.6
Dengue ..	100.0	180.0	760.0	..	..	60.0
Diphtheria ..	100.0	200.0	400.0	..	80.0	200.0
Dysentery ..	100.0	97.9	132.4	133.1	40.8	81.0
Enteric group of fevers ..	100.0	66.7	..	..	..	66.7
Malaria ..	100.0	67.4	84.9	63.1	14.8	39.4
Mumps ..	100.0	40.2	23.1	..	21.4	12.8
Oriental sore ..	100.0	15.0	50.0	..	50.0	400.0
Sandfly fever ..	100.0	71.4	..	..	85.7	2,700.0
Scabies ..	100.0	36.3	63.0	35.5	20.6	12.6
Smallpox ..	100.0	60.0	20.0	..	..	8.0
Tuberculosis ..	100.0	44.8	41.4	21.7	62.1	55.2
Typhus fever ..	100.0	275.0	275.0	..	..	..
Venereal diseases ..	100.0	79.5	84.8	134.1	62.2	86.6
Mental diseases ..	100.0	80.9	86.8	69.1	67.6	41.3
ENT diseases ..	100.0	36.8	101.4	73.6	30.3	20.6
Eye diseases including trachoma ..	100.0	62.2	119.2	121.2	98.7	55.1
Rheumatic fever ..	100.0	50.0	75.0	..	75.0	25.0
Tonsillitis ..	100.0	44.1	84.7	359.3	86.4	61.0
Pharyngitis ..	100.0	..	..	..	2.0	..
Influenza ..	100.0	83.3	66.7	..	50.0	300.0
Pneumonia ..	100.0	32.9	40.2	37.8	17.1	26.8
Diarrhoea ..	100.0	81.7	67.5	102.4	32.5	36.7
Skin diseases ..	100.0	55.3	67.1	105.0	61.8	22.0
PUO ..	100.0	27.3	..	..	509.1	409.1
All other diseases ..	100.0	77.1	111.5	117.8	75.0	94.3
All diseases ..	100.0	64.9	86.1	92.9	50.6	63.3
Injuries (NEA) ..	100.0	97.5	96.6	131.1	99.8	88.7
Injuries (EA) ..	100.0	4,728.5	14.3	..	114.3	142.9
All cases ..	100.0	73.0	86.8	95.7	54.4	65.3
Deaths ..	100.0	115.4	57.7	92.3	123.1	92.3
Average daily sick ..	100.0	5.4	9.4	125.5	24.8	59.1

CHAPTER VIII

Medical Categorisation and Invalidings during 1939-1945

Section I

INTRODUCTION

Modern warfare makes increasing demands, both qualitative and quantitative, upon the service man. In the first place a high degree of physical capacity is needed, varying in nature and quality according to the demands of the employment. Secondly, an increasing level of intelligence is demanded in order to grasp the technical applications of science and of organization. Finally, his temperamental stability assumes an added importance in determining his conduct under war conditions.

The complexities of service life, and the great number of widely differing occupations involved, call for a precise selection of personnel on both physical and mental grounds. The success of a fighting service, as of a team, depends on the capacity of each component member completely to fulfil the individual tasks assigned to him. Any man unable to carry out his particular duties acts as a brake on the performance of the unit.

Therefore, not only must the individual characteristics of the man as a whole be correctly and completely assessed, but the requirements of the occupation in which he is to be employed must also be considered. This is the essence of the conservation of man-power since correct employment of the individual means greater working efficiency and less wastage.

Section II

GENERAL CLASSIFICATION PRINCIPLES

Medical standards are generally designed for the use of service medical officers. Two considerations are kept in mind by medical officers and Boards examining personnel. The first is the danger of classifying a man as fit for overseas duty in face of a disability which may be regarded too lightly. This may involve a large expenditure in training, maintenance and transport overseas (and back), all of which lessens combat strength. The second consideration is the exact contrary—that a man in whom is found a moderate degree of disability and who has carried out his work as a civilian unaffected by that disability and who is otherwise fit is not given too low an assessment because of a vague fear that the disability will be aggravated by service. To strike the mean between undue optimism on the one hand and unjustified pessimism on the other demands clinical judgment particularly in every border-line case. The decision in such cases especially is based primarily on function, that is, the capacity to perform the work involved in a given type of duty.

Allocation of a man to a particular service employment is not the responsibility of the medical officer or Board, nevertheless the process of classifying is based upon the general function to be performed by the man, and so involves an intimate relationship between medical classification and personnel selection.

Standards of medical classification in India were almost constantly under review by the Medical authorities. Those that existed at the outbreak of the War were found unsuitable for the immediate purpose and were of necessity repeatedly modified till about September 1942, when the Director of Medical Services (India) issued fresh instructions¹ laying down (a) policy with regard to medical classification and (b) categorisation principles, etc. Among the Indian officers the standards of medical classification were different as between officers on the one hand and VCOs, IORs and NCs(E) on the other. Since there have been comparatively insignificant invalidings among the Indian officers, whose numbers as against the Other Ranks were also relatively small, it seems proper to make a detailed study of the medical standards prescribed for the latter. The schedule of physical categories to which all the medical officers were required to adhere when medically classifying Indian personnel is noted below:—

POLICY

Category 'A'

Can see to shoot or drive.

Can undergo severe strain.

Without defects of locomotion.

With only minor (remediable) disabilities.

Is, therefore, in the opinion of the medical officer fit for General Service in any area in any theatre of War.

Category 'B'

Can see to shoot or drive.

Can undergo exertion not involving severe strain.

With slight defects of locomotion not incapacitating from normal movements of daily work.

With moderate degrees of disability not interfering with performance of normal work.

Is in the opinion of the Medical Officer fit for service overseas or in India not involving general service, but only service normally encountered at the Base or on the Line of Communication.

Category 'C'

Can see for ordinary purposes.

Can undergo exertion not involving severe strain.

With moderate degrees of disability not interfering with performance of normal duties.

With defects of locomotion not interfering of normal garrison duties in India.

Category 'D'

Men who are under medical care pending their final categorisation and disposal, i.e. men who are temporarily unfit.

Category 'E'

Men who are permanently unfit for military service.

Section III

CATEGORISATION PRINCIPLES

In addition the following broad principles were followed when considering the disposal of Indian personnel who could not be classified under category 'A':—

- (i) Those permanently unfit for any duty whatsoever were brought before a medical board and discharged in the normal way. Such cases were dealt with as expeditiously as possible (Category 'E').
- (ii) In addition to normal classifications, in Category 'B', specialists, technicians, regulars, reservists and specially enlisted men who were required for definite duties were accepted provided the M.O. considered them capable of performing the duties for which they were required e.g. a man could be acceptable provided he could see for ordinary purposes and only had a moderate degree of disability or defects of locomotion.
- (iii) Category 'C' embraced such personnel as were considered permanently unfit for service overseas for field service in India but who were fit for general garrison duties, thus releasing fit persons for field service.
- (iv) Upgrading from a lower to a higher category of temporarily categorised personnel was carried out by the officer in medical charge of troops. Reduction from a higher to a lower category of any individual could only be carried out by a medical board with the officer commanding hospital as the President. The opinion of the board was recorded on A.F.B.-179(c) (modified for India) in duplicate. Approval by the ADMS was not required.
- (v) All category 'B' and 'C' personnel whether temporary or permanent were fit personnel who were employed on suitable duties and not as a routine allowed to attend daily sick parades. All 'B' and 'C' category personnel whether temporary or permanent for whom employment could not be found in training battalions or equivalent units were posted away to a unit of their regiment or corps for such duties as they were fit for in accordance with their categorisation.
- (vi) Personnel who were temporarily categorised as other than category 'A' were medically examined at fortnightly intervals to ascertain if they were fit to be placed in a higher medical category. Officers Commanding units would have to ensure that personnel concerned report for medical examination at the correct time and place.

To ensure that the initial categorisation of wounded personnel discharged from hospital to training battalions on completion of medical treatment was carried out in the most practical manner possible both from a medical and military point of view, an experienced combatant officer attended all medical boards, held on such personnel. This officer was not a member of the medical board but acted as a technical military assessor and adviser to the board. He assisted the board in determining for what type of military employment men were fitted, thus ensuring that they were placed in the correct category.

Administrative Commandants of stations were responsible for detailing suitable combatant officers for this duty on the request of officers commanding hospitals.

- (vii) Special instructions governing disposal of temporarily categorised 'B' and 'C' cases, who failed to co-operate towards their recovery, were also laid down in the following manner:—

(1) If medical boards decided that the injuries of the soldiers were such that they could be fit for duty within six months but that recovery could depend on the individual's co-operation, the men could be granted up to six months special leave, on full pay for the first month and one third pay of substantive rank for the remaining period. They were to be granted free passages to and from their homes. In suitable cases, however, it was open to medical boards to recommend periods of sick leave under the existing procedure.

(2) Officers Commanding depots etc., were to ensure that before the men selected by them proceeded on special leave, they were clearly told by experienced officers that they were being sent on leave to give them a chance to cure themselves at their homes since the medical authorities considered that they could recover fully. If, however, they did not help themselves and had not recovered on their return, they were again to be medically boarded and were liable to be discharged without any pension.

(3) At the end of this special war leave the soldiers were brought before medical boards—who classified them as under:—

(a) fit for service, or

(b) unfit for service, (i) as a result of their injuries

or

(ii) as a result of deliberate retardation by the soldier of his recovery.

(4) Cases of soldiers found unfit under paragraph 3(b)(i) above were dealt with under the ordinary rules, and they were granted the pensions or gratuities to which they were entitled. *Men falling under paragraph 3(b) (ii) above were discharged.* Under Rule 201, Pension Regulations for the Army in India, Part II, they had forfeited all claim to any class of pension or gratuity but in such cases an ex-gratia award of pension or gratuity not exceeding the amount they had earned by service was considered on the merits of each case, and a recommendation was submitted for the orders of the Government of India.

(5) In the case of soldiers coming under paragraph 3(b) (i) above, re-enrolment in suitable garrison or other static units, was permissible and every effort was made to enroll as many men as possible.

(6) Discretion as to which soldiers were to be dealt with under these instructions was vested in officers commanding training centres and battalions.

RECORDS OF CATEGORISATION

Records of categorisation was entered by the medical officer in charge of the cases in A.B. 64-M and in returning the case direct to his

unit, officers commanding hospitals were required to submit one copy of A.F.B. 179(c) (modified for India) to the officer commanding the individual's unit. The officer commanding the unit notified the record office or 2nd Echelon of changes of category in such cases.

In all other cases the A.F.B.179 (c) was to be sent to the individual's record office or to 2nd Echelon when the unit is administered by 2nd Echelon, which was to be ascertained by a slip which was pasted in the individual's pay book. The duplicate copy of the A.F.B. 179(c) was to be retained by the hospital.

Section IV

DISABILITY DETAILS

Details of any disability or defects of locomotion were invariably recorded in the man's medical history sheet or reference in case of future pension claims. This record was of the utmost importance for subsequent fairness to the man and to the State.

In connection with disability pension claims it was felt that the admissibility or rejection of disability pensions depended mainly upon the evidence produced by the medical boards. Accordingly the whole approach towards attributability, etc., was reversed in July 1944 and fresh instructions were issued governing such procedure. Before this date it was the duty of medical boards to prove that a disability was directly attributable to military service or materially aggravated thereby in order that pension might be admissible. Under the revised procedure, however, every disability was ordered to be regarded by the pension sanctioning authority as attributable to or aggravated by service unless the medical board could put forward satisfactory evidence to show that such is not the case. These considerations seem directly to flow from the two presumptions laid down under the new orders.

1. Each individual recruited is fit for the category applicable to the arm of service in which he serves.
2. Invaliding will be the result of deterioration of health while serving the State and therefore a pension is admissible.

It was shown by way of explanation that there were two types of cases which will arise in considering pension claims. If it was wounds received in action against the enemy, no difficulty with regards to their attributability should arise. Doubt, however, was felt would arise in the case of diseases whose origin (whether constitutional or infective) was difficult to trace. In all cases, Government of India had ruled that unless, conclusive evidence was given to rebut the presumptions given above, pension was admissible in each case. In cases of non-attributability, in particular, it was specially emphasized that the proving authority must have in its possession more convincing evidence to rebut the presumptions and should exercise *the greatest* care and scrutiny.

It was made incumbent on all medical boards to obtain every relevant fact, documentary and careful questioning of the individual, concerning each case and to express an opinion as to the attributability to or aggravation by, military service. It was considered no good expressing an opinion without having some proof of that opinion. Reasons were required to be given for arriving at a finding in each case.

Presidents of medical boards were asked to make it their personnel responsibility that all possible evidence as to the circumstances which led to the advent of a disease on an individual, its duration, his family history, his pre-service history, was elucidated before a claim was rebutted or supported.

As a measure of further looking into the welfare of the war disabled, it was required to the medical boards to endorse on the records of

individuals whether or not they would be in need of medical aid after discharge from the army and to indicate the precise type of medical attention that would be needed.

Commanding Officers and regimental officers assisted medical officers in maintaining the medical standard of personnel under their command by keeping under constant review the medical categories of all personnel under their command. If an individual had been placed permanently in category 'B' or 'C', he could subsequently apply for, or ordered to appear before a fresh categorisation board with a view to be placed in a higher medical category, provided his condition had materially improved due to passage of time or other cause.

Further instructions were issued during 1943 to medical boards and medical officers under which they were required to bear in mind that personnel categorised 'B' or 'C' must be capable of performing duties as defined in the schedule of medical classifications given above with particular reference to para. 2(v) of categorisation principles, also given above. Personnel not of the physical standards defined above were invalided from the army without delay.

In spite of all these instructions there were still many complaints of unintelligent categorisation. Many were placed in category 'C' when they would not perform the 'general garrison duties in India' required of them.

DOWN GRADING ON ACCOUNT OF 'SECOND DEGREE CONSTITUTION'

It was occasionally necessary to down-grade a man because, although he suffered from no specific disability, his general physique was such that he was not capable of work involving severe strain. In such cases no diagnosis in accordance with Nomenclature of Diseases was possible, and this could prove an obstacle to the medical board. It was, therefore, agreed that for the purpose of a medical board such cases should be labelled 'Second Degree Constitution'. No amendment to the Nomenclature of Diseases was considered necessary as it was not intended that this diagnosis should be used in cases brought forward for invaliding.

When the roll of invaliding from the Indian Army started mounting, it was observed that these standards allowed² the entry of many individuals suffering from diseases and defects which often, after a comparatively short period of service prove to be a cause of invaliding. Recruits invalided with less than four months' service from such diseases as advanced pulmonary tuberculosis, partial blindness, deafness, deformities of limbs, imbecility and leprosy emphasised the importance of thorough medical examination at the time of recruitment. Attention of recruiting medical officers was, therefore, drawn particularly to this aspect in view of the altered state policy with regard to pension claims. These medical officers were also directed to carefully note all defects discovered at the time of examination on every individual's history sheet, if disabilities unconnected with service were to be assessed properly by the pension sanctioning authorities. Correct categorisation was also insisted upon.

² Medical Directorate, India, Administrative Instruction No. 294, dated 17th August 1945.

CHAPTER IX

Invalidings 1939-45

Section I

INTRODUCTION

Basic data for this Chapter have been collected from the compilations made from "AFA 32 (modified for India)—Annual Return of Sick and Wounded", and "monthly nominal rolls of the personnel of the Indian Army from overseas theatres, invalided or discharged as medically unfit".

Discharges took place in India, because no soldier can be medically discharged overseas. In cases where a soldier is being considered for discharge, he is recommended to the Base General Hospital in India where his Board and other details are decided upon.

Since very few discharges on medical grounds took place among Indian officers, WAC(I) and IMNS cases of VCOs, IORs and NCs(E) are being taken into consideration in this Chapter.

Relative invalidment rate means percentages of invalidments with a given disease among total diseases. Absolute invalidment rate is taken here to mean the rate calculated with the incidence of a particular disease against 1,000 strength.

Crude rates will be compared here because differences with respect to age composition of the population at risk, although not very great, cannot be ascertained for lack of data. Figures for WAC(I) and IMNS etc., are also not consistently available.

TABLE 1
Invaliding among VCOs and IORs from India Command.

Diseases	1939		1940		1941		1942		1943		1944		1945	
	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate
General injuries	2	0.10	2	0.06	13	0.20	18	0.10	18	0.07	28	0.11
Local injuries	259	12.59	305	9.35	549	8.51	1,407	7.97	2,288	8.64	2,933	11.21
Injuries in action	14	0.68	9	0.28	18	0.28	3	0.02	219	0.83	640	2.45
1. Total	126	16.73	275	13.37	316	9.69	580	8.99	1,428	8.09	2,525	9.54	3,601	13.77
Mental deficiency	2	0.06	26	0.40	124	0.70	288	1.09	306	1.17
Feeble-mindedness	6	0.18	7	0.11	64	0.36	152	0.57	86	0.33
Mania	15	0.73	54	1.66	45	0.70	133	0.75	175	0.66	26	0.10
Melancholia	10	0.31	22	0.34	34	0.19	29	0.11	21	0.08
Schizophrenia	32	1.56	58	1.78	88	1.36	442	2.50	867	3.28	511	1.95
Neurasthenia	10	0.49	2	0.06	34	0.53	35	0.20	62	0.23	28	0.11
Anxiety neurosis	6	0.18	30	0.46	77	0.44	261	0.99	621	2.37
Hysteria	50	2.43	81	2.48	186	2.88	724	4.10	1,421	5.37	1,408	5.38
Other mental diseases	32	1.56	40	1.23	169	2.62	345	1.95	646	2.44	610	2.33
2. Total	56	7.44	140	6.81	259	7.94	607	9.41	1,978	11.20	3,901	14.74	3,617	13.82
Dysentery	1	0.05	6	0.18	9	0.14	32	0.18	71	0.27	72	0.28
Enteric group of fevers	3	0.02	1	0.00	..	..
Malaria	14	0.68	24	0.74	65	1.01	262	1.48	236	0.89	196	0.75
Pneumonia	1	0.05	5	0.15	10	0.15	31	0.18	40	0.15	23	0.09
TB pulmonary	351	17.06	571	17.51	968	15.00	1,786	10.11	1,987	7.51	1,380	6.04
TB others	48	2.33	60	1.84	133	2.06	276	1.56	248	0.94	237	0.91
Gonorrhoea	5	0.24	7	0.21	16	0.25	96	0.54	92	0.35	11	0.04
Soft chancre	1	0.02	..	..	..	..	..	..
Syphilis	14	0.68	5	0.15	15	0.23	68	0.38	68	0.26	28	0.11
Other VD	1	0.05	..	..	2	0.03	13	0.07	22	0.08	25	0.10
Scabies	4	0.06	19	0.11	13	0.05	8	0.03
Other infective and parasitic diseases	15	1.99	37	1.80	129	3.96	334	5.17	1,040	5.89	1,517	5.74	1,264	4.83

TABLE 1—(Contd.)

Diseases	1939			1940			1941			1942			1943			1944			1945		
	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate			
Diseases of the system ..	44	5.84	167	8.12	362	11.10	690	10.69	1,410	7.98	1,251	4.73	1,410	7.98	1,251	4.73	818	3.13			
Nervous Diseases of the eye ..	42	5.58	169	8.22	230	7.05	430	6.66	1,522	8.62	1,721	6.50	1,522	8.62	1,721	6.50	1,777	6.79			
Diseases of the ear and nose ..	11	1.46	61	2.97	95	2.91	164	2.54	692	3.92	1,468	5.55	692	3.92	1,468	5.55	1,776	6.79			
Diseases of the circulatory system ..	24	3.19	104	5.05	155	4.75	317	4.91	655	3.70	884	3.34	655	3.70	884	3.34	898	3.43			
Diseases of the blood and blood forming organs ..	8	1.06	36	1.75	65	1.99	193	2.99	805	4.56	1,133	4.28	805	4.56	1,133	4.28	683	2.61			
Diseases of the ductless or endocrine glands ..	3	0.40	7	0.34	14	0.43	20	0.31	47	0.27	101	0.38	47	0.27	101	0.38	51	0.19			
Bronchi and bronchioles ..	20	2.66	107	5.20	218	6.69	546	8.46	1,737	9.83	2,466	9.32	1,737	9.83	2,466	9.32	2,134	8.16			
Other respiratory diseases ..	19	2.52	33	1.61	54	1.66	190	2.95	327	1.85	788	2.98	327	1.85	788	2.98	755	2.88			
Diseases of the teeth and gums ..	13	1.73	57	2.77	32	0.98	50	0.77	227	1.29	427	1.61	227	1.29	427	1.61	471	1.80			
Diseases of the digestive system ..	32	4.25	117	5.68	186	5.71	311	4.82	655	3.71	1,151	4.36	655	3.71	1,151	4.36	1007	3.85			
Diseases due to disorders of nutrition or of metabolism ..	11	1.46	11	0.53	28	0.86	41	0.64	77	0.44	105	0.40	77	0.44	105	0.40	101	0.39			
Diseases of the male generative system ..	5	0.66	15	0.73	32	0.98	38	0.59	91	0.52	237	0.90	91	0.52	237	0.90	131	0.50			
Diseases of the bones, joints, muscles, fasciae and bursae ..	62	8.23	180	8.76	252	7.73	424	6.57	1,164	6.59	1,861	7.03	1,164	6.59	1,861	7.03	1,880	7.19			
Diseases of the skin ..	7	0.93	28	1.36	84	2.58	155	2.40	635	3.59	1,362	5.14	635	3.59	1,362	5.14	2,038	7.79			
Diseases of the acrolar tissues ..	..	..	6	0.29	11	0.34	27	0.42	228	1.29	468	1.77	228	1.29	468	1.77	502	1.92	
Diseases of the urinary organs ..	8	1.06	31	1.51	31	0.95	70	1.08	104	0.59	139	0.52	104	0.59	139	0.52	154	0.59			
Tumours and cysts ..	13	1.73	23	1.12	21	0.64	30	0.46	66	0.37	75	0.28	66	0.37	75	0.28	57	0.22			
All other diseases ..	1	0.13	18	0.87	9	0.27	13	0.20	190	1.07	114	0.42	190	1.07	114	0.42	265	1.01			
3. Total ..	571	75.83	1,642	79.82	2,686	82.37	5,266	81.61	14,258	80.71	20,046	75.72	14,258	80.71	20,046	75.72	18,942	72.41			
4. Grand total ..	753	100.00	2,057	100.00	3,261	100.00	6,453	100.00	17,664	100.00	26,472	100.00	17,664	100.00	26,472	100.00	26,160	100.00			

TABLE 2

Absolute invaliding rates among VCOs and IORs from India Command.

Diseases		1939	1940	1941	1942	1943	1944	1945
General injuries ..	..	..	0.01	0.01	0.02	0.02	0.02	0.03
Local injuries ..	..	0.95	1.49	0.92	1.04	1.90	2.59	3.35
Injuries in action ..	..	0.13	0.08	0.03	0.03	0.00	0.25	0.73
1. Total ..	..	1.08	1.59	0.95	1.10	1.93	2.85	4.11
Mental deficiency ..	..	..	..	0.01	0.05	0.17	0.33	0.35
Feeble-mindedness ..	..	0.01	0.01	0.02	0.01	0.09	0.17	0.10
Mania ..	..	0.06	0.09	0.16	0.09	0.18	0.20	0.03
Melancholia ..	..	0.01	..	0.03	0.04	0.05	0.03	0.02
Schizophrenia ..	..	0.11	0.18	0.17	0.17	0.60	0.98	0.58
Neurasthenia ..	..	0.05	0.06	0.01	0.06	0.05	0.07	0.03
Anxiety neurosis ..	..	..	..	0.02	0.06	0.10	0.30	0.71
Hysteria ..	..	0.13	0.29	0.24	0.35	0.98	1.61	1.61
Other mental diseases	..	0.11	0.18	0.12	0.32	0.46	0.73	0.70
2. Total ..	..	0.48	0.81	0.78	1.15	2.67	4.41	4.13
Dysentery ..	..	..	0.01	0.02	0.02	0.04	0.08	0.08
Enteric group of fevers	..	..	..	..	..	0.00	0.00	..
Malaria ..	..	0.02	0.08	0.07	0.12	0.35	0.27	0.22
Pneumonia ..	..	0.01	0.01	0.02	0.02	0.04	0.05	0.03
TB pulmonary ..	..	1.70	2.02	1.72	1.84	2.41	2.25	1.80
TB others ..	..	0.22	0.28	0.18	0.25	0.37	0.28	0.27
Gonorrhoea ..	..	0.02	0.03	0.02	0.03	0.13	0.10	0.01
Soft chancre ..	..	..	..	..	0.00	..	..	..
Syphilis ..	..	0.03	0.08	0.01	0.03	0.09	0.08	0.03
Other VD ..	..	..	0.01	..	0.00	0.02	0.02	0.03
Scabies ..	..	..	..	..	0.01	0.03	0.01	0.01
Other infective and parasitic diseases ..	..	0.13	0.21	0.38	0.63	1.41	1.72	1.43
Diseases of the nervous system ..	..	0.38	0.96	1.09	1.31	1.90	1.41	0.93
Diseases of the eye ..	..	0.36	0.97	0.69	0.82	2.06	1.95	2.03
Diseases of the ear and nose ..	..	0.09	0.35	0.29	0.31	0.93	1.66	2.03
Diseases of the circula- tory system ..	..	0.20	0.60	0.46	0.59	0.88	1.00	1.02
Diseases of the blood and blood forming organs ..	..	0.07	0.21	0.20	0.37	1.09	1.28	0.78
Diseases of the ductless or endocrine glands	..	0.03	0.04	0.04	0.04	0.06	0.11	0.06
Bronchi and bronchioles	..	0.17	0.62	0.65	1.04	2.35	2.79	2.43
Other respiratory dise- ases ..	..	0.16	0.19	0.16	0.37	0.44	0.89	0.87
Diseases of the teeth and gums ..	..	0.11	0.33	0.10	0.10	0.31	0.48	0.54
Diseases of the digestive system ..	..	0.27	0.67	0.56	0.60	0.88	1.30	1.15
Diseases due to disorders of nutrition or of metabolism ..	..	0.09	0.06	0.08	0.08	0.10	0.12	0.12
Diseases of the male generative system ..	..	0.04	0.09	0.10	0.07	0.12	0.28	0.15
Diseases of the bones, joints, muscles, fasciae and bursae ..	..	0.53	1.04	0.76	0.81	1.57	2.10	2.15
Diseases of the skin ..	..	0.06	0.16	0.25	0.29	0.86	1.54	2.33
Diseases of the areolar tissues ..	..	..	0.03	0.03	0.05	0.31	0.52	0.57

TABLE 2—(Contd.)

Diseases		1939	1940	1941	1942	1943	1944	1945
Diseases of the urinary organs ..		0·07	0·18	0·09	0·13	0·14	0·16	0·18
Tumours and cysts ..		0·11	0·13	0·06	0·06	0·09	0·08	0·07
All other diseases ..		0·01	0·10	0·03	0·03	0·27	0·13	0·30
3.	Total ..	4·88	9·47	8·07	10·02	19·26	22·66	21·61
4.	Grand total ..	6·43	11·86	9·80	12·28	23·87	29·93	29·85

Section II

INVALIDINGS, 1939-45, IN OVERSEAS CASES OF THE INDIAN ARMY

This section will be devoted to the consideration of total invalidings among VCOs, IORs and NCs(E) from overseas theatres from 1939-45 and such invalidings for various important theatres of the war, from a number of diseases. Tables 3 and 4 set out in detail total invalidings by important diseases. There were very few invalidings in 1939. From 1940-45 a very steep increase in the number of invalidings can be seen among the VCOs and IORs and also among the NCs(E).

VCOS AND IORS

The importance which the diseases specified in Table 3 have in between themselves from year to year indicates also the mounting trend of the momentum of the war and its diseases. In 1940, the highest relative rate is that for diseases of bones, joints and muscles (16·37) followed by diseases of war wounds, TB pulmonary, mental, nerves and pyorrhoea with their relatives rates as 14·03, 8·77, 8·19, 8·19 and 4·09 respectively. Thereafter war wounds take the first position among the diseases whose relative rate also more than trebles itself. Next to war wounds are generally mental diseases with relative percentages varying between 6·47 to 19·05 per cent. Diseases of pulmonary TB, bones, joints and muscles, eyes, nerves, bronchitis and ENT occupy higher places among the diseases tabulated here. It is interesting to observe that leprosy, a comparatively very minor war disease, figures in the important diseases from 1941 onwards from the point of view of medical discharges. Its relative rate was lowest at 2·06 in 1941 and highest at 3·23 in 1942.

In war wounds and injuries, except for 1940 when fractures occupy relatively the most important place among them, it is always gun shot wounds which claim the highest place. They take away easily between 50 to 65 per cent. of all war wounds and injuries invalidments. Next in importance is fractures which contribute from 12 to 20 per cent. of all war wounds and injuries invalidments. It is in 1944 and 1945 only that shell wounds also assume equal importance with fractures in invalidments. Bomb wounds also contribute on an average about one tenth of the war wound invalidments.

In mental diseases, it is always hysteria which contribute relatively maximum cases towards invalidment except in 1944 and 1945 when invalidment due to this disease approximates to that by schizophrenia also. The relative percentages of cases from hysteria were 6·43 (in 8·19 total mental) during 1940; 3·19 (in 11·26 total mental) during 1941; 2·14 (in 6·47 total mental) during 1942 and 3·12 (in 9·50 total mental) during 1943. During 1944 and 1945, however, the relative rates of invalidation due to schizophrenia and hysteria were 3·68 and 3·06 (against a total rate of 13·95) and 6·64 and 5·39 (against a total rate of 19·05) respectively.

The importance of dysentery, nephritis, diabetes and VD (syphilis) from the point of view of invalidment is very little. It is

interesting to note how it generally diminishes in each disease during the period under consideration.

NON COMBATANTS (ENROLLED)

Unlike the VCOs and IORs, in cases of invalidment among the NCs(E) the most prominent cause of invalidment, over the period under consideration, is TB pulmonary. War wounds and injuries are conspicuous in these cases for occupying a less important position among the diseases tabulated. Even if they come as second or third in order of importance in a particular year, e.g. 1944 or 1945, the difference in the relative rates between the highest disease and war wounds and injuries is considerable. Actually, it is mental diseases which take precedence over every other disease except TB pulmonary in the case of NCs(E). During 1943-45, it is the mental diseases which head the list in importance. There is very little variation in the relative percentages which cases of pulmonary TB bear to the cases for all diseases. This percentage varies round about 15 till 1944 and shows a decline to 7.32 in 1945 (Table 4).

The relative invalidment rates for mental diseases indicate in general the one-tenth contribution by this group of diseases towards the total till 1943 after which it increases to 18.12 in 1944 and shows a sudden jump to 47.18 in 1945. The figure for 1945 deserves to be specially noted. As in the case of the VCOs and IORs, the largest contribution towards the total mental cases has been made by hysteria. Schizophrenia comes second during the period except for the year 1944 and 1945 when it occupies the pre-eminent position. Its importance during the period gets increased by about eight times. Another distinctive feature of invalidments among the NCs(E) from those for the VCOs and IORs is the importance which manic depressive psychosis among mental cases assumes during the period.

Other important diseases which contributed largely towards the NCs(E) invalidments may generally be shown as leprosy, bronchitis, and diseases of bones and joints, eyes, asthma, nerves, etc. It is significant to see the relative importance of leprosy and eye diseases while considering NCs(E) invalidments. Inanition also assumed some importance during 1943 and 1944 only. At one stage doubts were created in the minds of the authorities in India as to whether medical officers detailed for the examination of recruits were enforcing properly the standards of medical fitness required of Indian recruits. At the increasing roll of invalidments, occasion was taken in 1945 to point out that the general physical standards accepted as adequate for enrolment in the Indian Army during the war allowed the entry of many individuals suffering from diseases and defects which, after comparatively short period of service, proved to be the cause of invalidment. It was also remarked that this was specially true of those enrolled as non-combatants or labourers or in garrison companies. In this connection, special emphasis was laid on diseases such as chronic bronchitis, bronchial asthma, pulmonary TB, eye diseases, leprosy, etc. It is hardly necessary to point out that these remarks are wholly borne out by the explanatory remarks given above on Tables 1 to 4.

TABLE 3
Invalidings among VCOs and IORs from Overseas Theatres.

Diseases	1939		1940		1941		1942		1943		1944		1945	
	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate
Gunshot wounds	4	2.34	116	21.76	570	31.27	375	19.16	681	13.71	2,435	20.68
Shell wounds	9	1.69	44	2.41	29	1.48	255	5.13	841	7.14
Bomb wounds	13	2.44	74	4.11	87	4.44	113	2.27	478	4.06
Other wounds	18	3.38	25	1.37	34	1.74	132	2.66	327	2.78
Fracture ..	1	50.00	17	9.94	14	2.63	123	6.75	127	6.49	304	6.12	859	7.29
Injuries other	3	1.75	5	0.94	5	0.27	7	0.36	89	1.79	155	1.32
1. Total ..	1	50.00	24	14.03	175	32.83	841	46.18	659	33.67	1,574	31.69	5,095	43.27
Schizophrenia ..	1	50.00	..	..	12	2.25	19	1.04	43	2.20	183	3.68	782	6.64
Manic depressive psychosis.	13	2.44	21	1.15	28	1.43	70	1.41	148	1.26
Melancholia	1	0.19	1	0.05	3	0.15	2	0.04	..	..
Anxiety state	13	0.71	12	0.61	53	1.07	184	1.56
Hysteria	11	6.43	17	3.19	39	2.14	61	3.12	152	3.06	635	5.39
Mental deficiency	2	0.38	8	0.44	11	0.56	32	0.64	182	1.55
Other mental	2	1.17	15	2.81	17	0.93	28	1.43	201	4.05	312	2.65
2. Total ..	1	50.00	14	8.19	60	11.26	118	6.47	186	9.50	693	13.95	2,243	19.05
3. TB pulmonary	15	8.77	60	11.26	181	9.93	278	14.20	576	11.60	580	4.93
4. Diseases of bones, joints and muscles	28	16.37	47	8.82	187	10.26	125	6.39	291	5.86	470	3.99
5. Bronchitis	1	0.58	18	3.38	33	1.81	68	3.47	206	4.15	309	2.62
6. Pleurisy	4	2.34	3	0.56	11	0.60	34	1.74	181	3.64	190	1.61
7. Leprosy	1	0.58	11	2.06	59	3.23	62	3.17	134	2.70	341	2.89
8. Diseases of the eyes	5	2.92	22	4.13	53	2.91	89	4.55	130	2.62	469	3.98
9. Digestive diseases	4	2.34	6	1.13	8	0.44	19	0.97	118	2.38	163	1.38
10. Diseases of ear, nose and throat	6	3.51	14	2.63	31	1.71	24	1.23	120	2.42	533	4.53
11. Other circulatory diseases	6	3.51	..	..	18	0.99	22	1.12	106	2.13	176	1.50

TABLE 3—(Contd.)

Diseases	1939		1940		1941		1942		1943		1944		1945	
	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate
12. Asthma	4	2.34	14	2.63	36	1.97	78	3.99	99	1.99	143	1.21
13. Nervous diseases	14	8.19	25	4.69	82	4.50	50	2.55	100	2.01	119	1.01
14. TB others	6	3.51	3	0.56	66	3.62	68	3.47	69	1.39	110	0.93
15. Diseases of the blood and blood forming organs	3	1.75	2	0.38	9	0.49	15	0.77	53	1.07	57	0.48
16. Dysentery	4	0.22	5	0.26	43	0.87	20	0.17
17. Other infective diseases	1	0.58	..	..	5	0.27	9	0.46	39	0.79	32	0.27
18. Inanition	3	0.16	28	1.43	22	0.44	5	0.04
19. Malaria	1	0.19	3	0.16	8	0.41	23	0.46	22	0.19
20. Pyorrhoea	7	4.09	4	0.75	4	0.22	11	0.56	22	0.44	72	0.61
21. Nephritis	1	0.58	1	0.19	2	0.10	10	0.51	18	0.36	12	0.10
22. Diabetes	6	3.51	3	0.56	8	0.44	2	0.10	14	0.28	19	0.16
23. Syphilis	1	0.58	4	0.75	..	..	3	0.15	8	0.16	18	0.15
24. Other respiratory diseases	6	3.51	5	0.94	11	0.62	9	0.46	14	0.28	20	0.17
25. Filariasis	5	0.26	..	..	..	..
26. Endocarditis	6	0.31	..	..	..	..
27. Hernia	11	0.56	..	..	..	..
28. Piles	2	0.10	..	..	..	..
29. Peritonitis	7	0.36	..	..	..	..
30. Calculi of kidney	5	0.26	6	0.12	15	0.13
31. Skin diseases	29	0.58	107	0.91
32. Other VD	8	0.16	..	..
Total ..	2	100.00	157	91.81	478	89.68	1,773	97.26	1,898	96.99	4,696	94.56	11,340	96.31
All other causes	14	8.19	55	10.32	50	2.74	59	3.01	270	5.44	435	3.69
Grand total ..	2	100.00	171	100.00	533	100.00	1,823	100.00	1,957	100.00	4,966	100.00	11,775	100.00

TABLE 4
Invalidings among NCs(E) from Overseas Theatres.

Diseases	1939		1940		1941		1942		1943		1944		1945	
	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate
Gunshot wounds	1	1.85	2	1.47	10	1.54	15	0.90	59	2.68
Shell wounds	12	0.72	33	1.50
Bomb wounds	1	0.73	3	0.46	3	0.18	11	0.50
Other wounds	1	0.73	13	2.00	14	0.84	12	0.55
Fractures	2	2.63	2	3.70	11	8.09	22	3.38	77	4.60	114	5.18
Injures other..	1	..	1	1.85	..	..	2	0.31	17	1.02	10	0.45
1. Total	4	2.63	4	7.41	15	11.03	50	7.69	138	8.25	239	10.86
Schizophrenia	1	2.63	1	1.85	5	3.68	25	3.85	74	4.42	444	20.18
Manic depressive psychosis.	1	..	1	1.85	5	3.68	9	1.38	33	1.97	51	2.32
Melancholia	1.32	..	..	1	0.73	..	..	1	0.06	..	..
Anxiety state	3	2.21	5	0.77	17	1.02	50	2.27
Hysteria	4	5.26	..	..	3	2.21	22	3.38	73	4.36	182	8.27
Mental deficiency	1	..	1	1.85	1	0.73	2	0.31	25	1.50	146	6.64
Other mental..	1	1.32	1	1.85	3	2.21	12	1.85	80	4.78	165	7.50
2. Total	4	10.53	4	7.41	21	15.44	75	11.54	303	18.12	1,038	47.18
TB pulmonary	6	11.84	6	11.11	21	15.44	70	10.77	205	12.26	161	7.32
Diseases of bones, joints and muscles	9	7.89	5	9.26	11	8.09	46	7.08	101	6.03	107	4.86
5. Bronchitis	6	1.32	2	3.70	9	6.62	53	8.15	251	15.01	90	4.09
6. Pleurisy	1	5.26	..	..	1	0.73	3	0.46	33	1.97	36	1.64
7. Leprosy	1	1.32	5	9.26	8	5.88	48	7.38	94	5.62	68	3.09
8. Diseases of the eyes	1	9.21	5	9.26	10	7.35	37	5.69	59	3.53	87	3.95
9. Digestive diseases	2	2.63	2	3.70	1	0.73	16	2.46	25	1.50	24	1.09
Diseases of ear, nose and throat	1	1.32	..	..	1	0.73	9	1.38	24	1.44	80	3.64
11. Other circulatory diseases..	1	50.00	3	3.95	..	..	2	1.47	6	0.92	55	3.29	44	2.00

TABLE 4—(Contd.)

Diseases	1939		1940		1941		1942		1943		1944		1945	
	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate
12. Asthma	5	6.58	1	1.85	8	4.88	31	4.77	66	3.95	37	1.68
13. Nervous diseases	8	10.53	5	9.26	5	3.68	19	2.92	42	2.51	27	1.23
14. TB others	2	2.63	1	1.85	9	6.62	15	2.31	16	0.96	23	1.05
15. Diseases of the blood and blood forming organs	4	0.62	8	0.48	12	0.55
16. Dysentery	1	0.15	4	0.24	4	0.18
17. Other infective diseases	2	1.47	11	1.69	40	2.39	1	0.04
18. Inanition	42	6.46	36	2.15	4	0.18
19. Malaria	14	2.15	10	0.60	4	0.18
20. Pyorrhoea	3	5.56	1	0.73	7	1.08	19	1.14	11	0.50
21. Nephritis	4	5.26	..	..	..	..	..	..	8	0.48	6	0.27
22. Diabetes	2	2.63	..	..	..	..	1	0.15	4	0.24	4	0.18
23. Syphilis	1	1.32	..	..	..	..	4	0.62	7	0.42	6	0.27
24. Other respiratory diseases	3	3.95	1	1.85	3	2.20	..	..	8	0.48	6	0.27
25. Filariasis	1	0.15	..	..	..	..
26. Endocarditis	3	0.46	..	..	..	..
27. Hernia	5	0.77	..	..	..	..
28. Calculi of kidney	1	0.15	2	0.12	2	0.09
29. Skin diseases	15	0.90	10	0.45
30. Other VD	1	0.06	..	..
Total ..	2	100.00	70	92.11	44	81.48	128	94.12	573	88.15	1,574	94.14	2,131	96.86
All other causes	6	7.89	10	18.52	8	5.88	77	11.85	98	5.86	69	3.14
Grand total ..	2	100.00	76	100.00	54	100.00	136	100.00	650	100.00	1,672	100.00	2,200	100.00

Section III

BURMA

During Christmas of 1941 Siam-based Japanese aircraft raided Rangoon. On 15th February, 1942 Singapore was occupied by the Japanese. By April 1942 retreat of British and Indian Forces from Burma had begun. Allied offensive from Burma was being planned by the end of 1942. By 1944 Allied troops were advancing in Burma. By 2 May, 1945 Rangoon was recaptured. The invalidment figures from the Burma front cover the period from 1942 to 1945. Tables 5 and 6 show increasing figures of invalidment from year to year, which with a certain inevitable time lag (between the recommendation for and actual invalidment) should correlate directly with the intensity of the war. It must also be remembered that troops were fighting in one of the most malarious parts of the world. No where except perhaps in New Guinea did an army suffer worse from diseases than in Burma.

It will be seen from Tables 5 and 6 that total invalidment, from all causes, during the period under consideration was 10,040 for the VCOs and IORs and 2,350 for the NCs(E). The contribution made by the year 1945 towards this total is outstanding both in the case of the VCOs and IORs and that of the NCs(E). It was 73·17 per cent. in the case of the former and 68·90 per cent. in the case of the latter. These percentages for the previous 3 years were as follows:—

VCOs and IORs—	17·73, 5·67 and 3·43; and
NCs(E)	—19·91, 10·13, 1·06% respectively.

VCOs AND IORs

WAR WOUNDS AND INJURIES

Invalidments due to war wounds and injuries rose from year to year during the period under consideration, to a peak of 2,799 in 1945 (Table 5). The war in Burma was at its height during 1944-45 and consequently this period contributed the greatest number of invalidments due to war wounds. The percentage which invalids due to war wounds and injuries in 1945 bears to the total invalidments from the same causes, during 1942-45, is 76·64. Another fact which emerges from this table is the consistency of the relative percentage which war wounds and injuries, invalidments bear to the total invalidment in each year. The figure varies between 28·15 per cent. and 38·35 per cent. in 1943 (it was 35·94 per cent. in 1942 and 38·09 per cent. in 1945). This shows that war wounds and injuries in Burma always contributed more than 1/3rd of total invalidment in every year.

Among the war wounds and injuries the highest contribution has been made by gunshot wounds from year to year. Next in importance are the bomb wound invalidments, followed by fractures and shell wounds and other-wound invalidments. It is significant to note

that gun-shot wounds contributed more than 50 per cent. of all war wounds and injury invalidment every year. This percentage in the case of bomb wounds shows a declining trend from year to year. It was about 22·6 per cent of total war wounds and injuries in 1942 and about 10·2 per cent. in 1945.

MENTAL DISEASES

As in the case of war wounds and injuries, invalidments due to mental diseases also gradually rose during the period (Table 5). Here again the highest figure was for the year 1945 (1,670) which is 80·83 per cent. of total invalidments due to mental diseases. The relative importance of mental diseases also shows an increasing trend. Their incidence in 1942 was 4·64 per cent. among the total invalidments, which increased to 7·03 per cent. in 1943; to 18·65 per cent. in 1944 and to 22·73 per cent. in 1945 (Table 5). Among mental diseases the largest contribution, every year, has been made by schizophrenia, with hysteria as a close second. In fact, hysteria is the largest contributor during the years 1942 and 1944. This table also indicates the declining relative importance of manic depressive psychosis and the increasing rate of anxiety-state invalidments. Here again the largest total contribution made by any year towards the total is by 1945. Schizophrenia invalidments in this year account for as much as 90·9 per cent. of such invalidments during 1942-45; and this figure from hysteria is 82·3 per cent.

The largest contribution towards invalidments, among other diseases, has been made by tuberculosis pulmonary. On the whole, it was responsible for about 6·11 per cent. of the total invalidments. It will, however, be seen that only in the year 1945 ENT diseases exceeded the contribution of pulmonary tuberculosis by a small figure. All throughout the rest of the period, and taken as a whole, tuberculosis pulmonary makes the largest contribution. ENT diseases have some importance in the years 1944 and 1945. Other important diseases which make a substantial contribution towards total invalidment from year to year are the diseases of bones; joints and muscles; eyes; asthma; *leprosy* and bronchitis. After 1942 digestive diseases also contributed towards the total invalidment by more than 1 per cent. This percentage was about 5 in the year 1944. It might be mentioned here that from the point of view of morbidity malaria, scrub typhus, dysentery, beri beri and jungle sores were some of the diseases to which the armies in Burma were exposed. Among them malaria was the most important. But from the point of view of invalidment, as can be seen from this table, malaria contributed very little towards invalidments. An over all contribution of 0·40 per cent. was made by this disease during the period under consideration. The numbers invalided due to malaria, however, kept on increasing from 1942 to 1945; the number invalided in 1945 was 21. Other important diseases which deserve a special mention here, are dysentery and skin diseases. Neither of them was responsible for any large percentage of invalidments in the Indian Army. The actual numbers of invalidments from dysentery were 3 in 1943; 32 in 1944 and 18 in 1945. The overall relative rate from this disease remained as

low as 0.53 per cent. From skin diseases invalidments took place in two years—1944 and 1945; with an overall rate of 0.90 per cent. of total invalidments.

NCs(E)

Total invalidments of NCs(E) increase from year to year during the period under consideration (Table 6). They are, however, always lower than those for the VCOs and IORs. NCs(E) invalidments form 7.2 per cent. 41.8 per cent. 26.3 per cent. and 22.0 per cent. of the VCOs and IORs invalidments from 1942 to 1945. Over the whole period they form 23.4 per cent. of the VCO and IOR invalidings.

WAR WOUNDS AND INJURIES

As should be expected, there are comparatively very low invalidments due to war wounds and injuries among the NCs(E). It is only in 1945 that they cause 132 invalidments which form 8.15 per cent of the total war wounds and injuries during the period. Another important point is that among war wounds and injuries it is fractures which cause the greatest invalidments every year. More than 80 per cent. in 1942 about 41 per cent. in 1943 and 60 per cent. in 1945 are the annual percentages attributable to them. It is only during 1944 that they cause only one invalidment, in a total of five due to war wounds and injuries. The absence of any large invalidments due to gunshot wound among the NCs(E) is noteworthy (Table 6)

MENTAL DISEASES

Mental invalidments keep on rising yearly along with their relative rates. Mental invalidments among NCs(E) accounted for 55 per cent. of all such invalidments in 1945, and for 30.34 per cent. of all such invalidments in 1944. As in the case of VCOs and IORs, here also the largest slice towards mental invalidments has been added by schizophrenia, in 1945. In other years it is generally hysteria which causes largest invalidments among mental diseases. Considering the total period as a whole, the relative importance of individual causes of mental invalidment assumes this descending order; schizophrenia, hysteria, mental deficiency, anxiety state and manic depressive psychosis.

Among the diseases other than 'war wounds and injuries', and 'mental', the largest invalidments have been caused by TB pulmonary; bronchitis is a close second, in this respect, having leprosy and diseases of bones, joints and muscles as occupying third and fourth places. It has already been mentioned in the first part of this chapter that opportunity was taken by the Medical Directorate(I) to notify in 1945 to all recruiting medical officers for proper care to be taken in examining recruits. It was stated at that time that recruits, non-combatants particularly, were being drafted into the army with diseases and defects which after a comparatively short period of service, proved to be causes of invalidment. Among the diseases, special mention was made of bronchitis, bronchial asthma, pulmonary tuberculosis, eyes, ear, leprosy and senility. This table bears out fully what has been stated above. It would be of interest in this connection to study each year all those diseases, except war wounds

and mental diseases which contributed at least 1 per cent. to the total invalidments. These diseases, in descending order in 1945, were:—

- Pulmonary tuberculosis
- Ear, nose and throat diseases
- Bronchitis
- Diseases of bones, joints and muscle
- Leprosy
- Eye diseases
- Circulatory diseases other than endocarditis
- Digestive diseases
- Asthma
- Nervous diseases and
- TB—other than pulmonary.

During 1943 also all these diseases are included among those that contributed at least 1 per cent. to total invalidments in that year. The order, however, is slightly different.

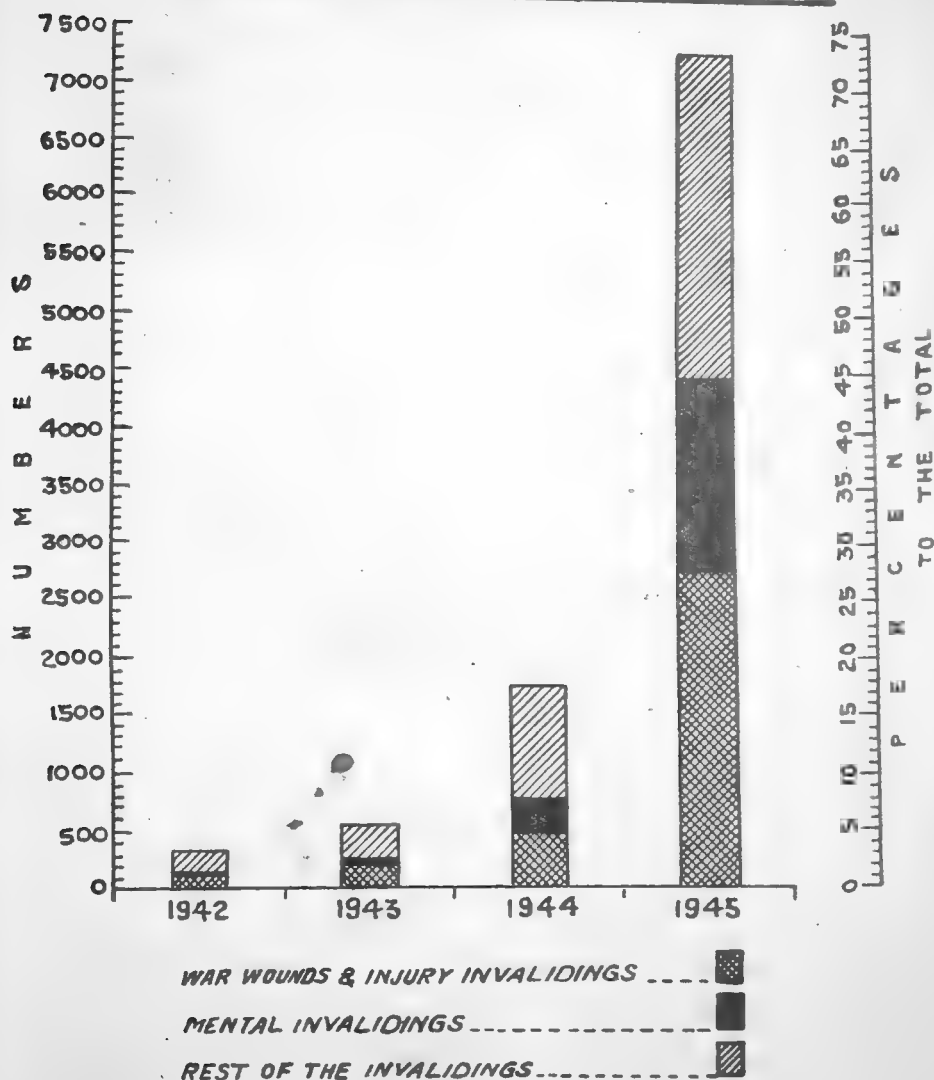
During 1944 and 1942 ENT and digestive diseases did not even show as low as 1 per cent. rate of contribution towards the total invalidments. Such was also the case with TB other than pulmonary in 1944. All the other of the above mentioned diseases contributed at a rate higher than 1 per cent. total invalidments during 1942 and 1944 also. The order of importance was, however, not the same.

Some special features of each year's invalidments may also be stated. In 1943, invalidings due to bronchitis were the maximum. They formed 13·87 per cent. of total invalidings. Inanition, with 10·08 per cent., occupies a significantly different position in this year from all the others. Inanition, which is another name of exhaustion due to starvation, can be a special feature of difficult terrains like that of Burma, where isolation of troops can take place any time, resulting in the shortage of food supplies. Leprosy, the third important disease in 1943, makes a comparatively large contribution also to the total. Another very distinct feature specific to the year 1943, in the period under consideration, is the incapacitations due to malaria. This disease caused 5·46 per cent. invalidments of the total. Diseases other than those that have been mentioned above, but which contributed more than 1 per cent. invalidments to the total, during 1943 were those of blood and blood forming organs; hernia and pyorrhoea.

During 1944 pleurisy, diseases of blood and blood forming organs and syphilis were also important. Each of them also invalidated at a rate just equal to or greater than 1 per cent. of the total. Invalidments due to syphilis is a special feature of the NCs(E) only. Its relative rate in other years is negligible.

During 1944-45 skin diseases also caused some invalidments. The relative rate in both the years was about one half of 1 per cent. of the total. What is of importance in 1945, however, is that skin diseases caused the highest of all invalidments by any disease after the diseases that contributed to the total at a rate of 1 per cent. or more.

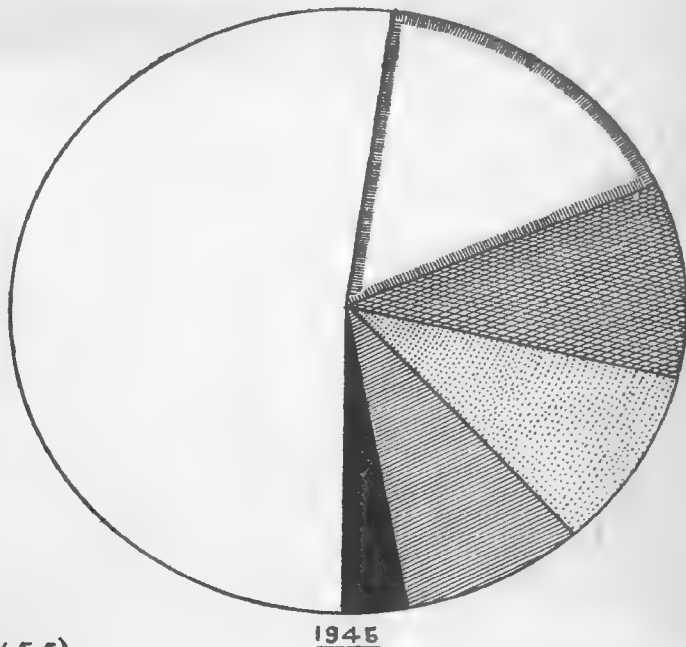
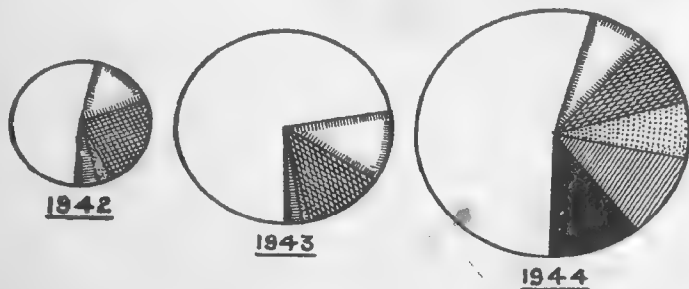
ANNUAL INVALIDINGS AMONG V.C.O.s. & I.O.R.s. ON BURMA FRONT, DURING 1942-'45



(SEE TABLE 5)

V.C.O.s. AND I.O.R.s. INVALIDINGS IN BURMA
DUE TO WAR WOUNDS AND INJURIES IN ACTION, BY TYPE OF INJURY,
DURING 1942-'45

NOTE:— THE AREAS OF THE CIRCLES IS PROPORTIONATE TO THE TOTAL NUMBER OF CASES DUE TO WAR WOUNDS AND INJURIES IN ACTION.

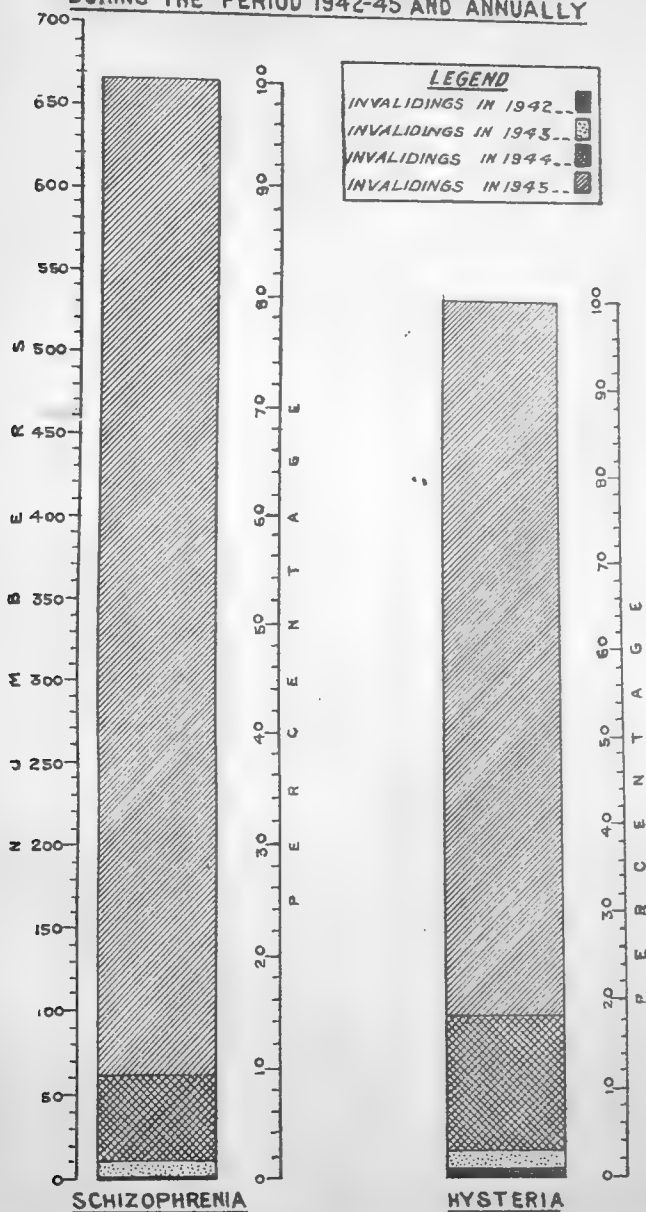


LEGEND

G.S. WOUND.....	△	SHELL WOUND.....	▴
FRACTURE.....	▴	OTHER WOUND.....	▾
BOMB WOUND.....	▾	INJURIES IN ACTION.....	▴

(SEE TABLE 5)

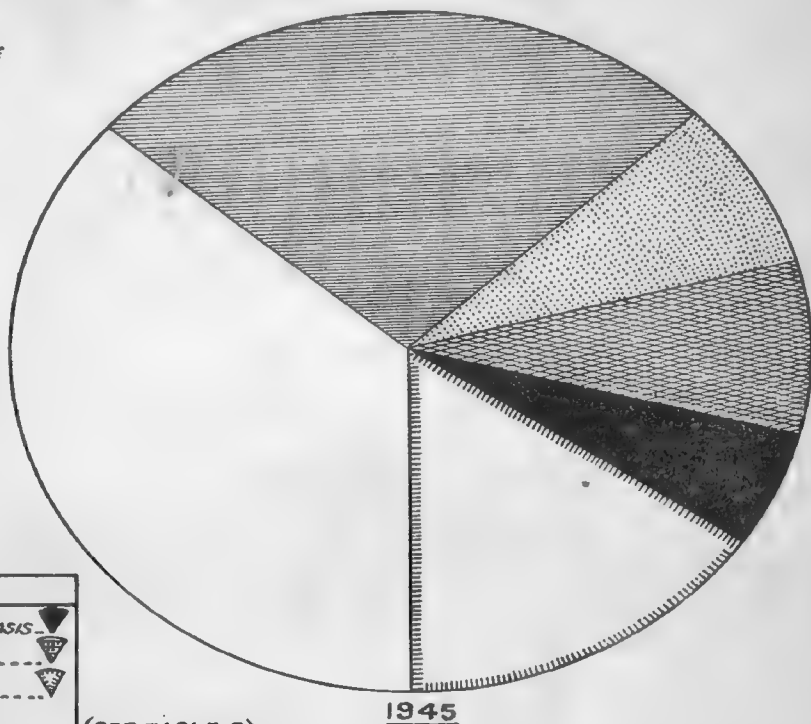
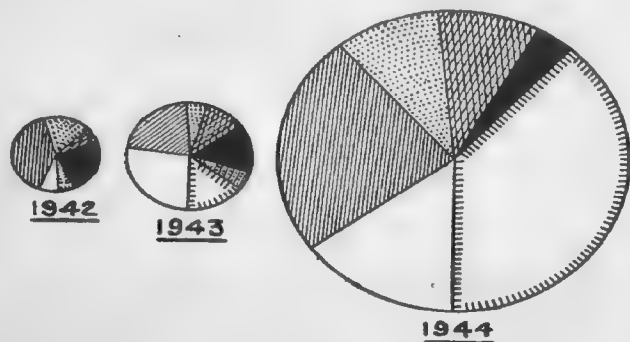
**TOTAL INVALIDINGS DUE TO SCHIZOPHRENIA
AND HYSTERIA AMONG V.C.Os. AND I.O.Rs.
DURING THE PERIOD 1942-45 AND ANNUALLY**



(SEE TABLE 5)

V.C.O.s. AND I.O.R.s. INVALIDINGS IN BURMA
DUE TO MENTAL DISEASES, BY TYPE OF DISEASE, DURING 1942-45

NOTE:— THE AREA OF THE CIRCLES IS PROPORTIONATE
 TO THE TOTAL NUMBER OF CASES DUE TO MENTAL
 DISEASES.



LEGEND

SCHIZOPHRENIA.....	MANIC DEPRESSIVE PSYCHOSIS.....
HYSTERIA.....	MELANCHOLIA.....
ANXIETY STATE.....	OTHER MENTAL DISEASES.....
MENTAL DEFICIENCY.....	

(SEE TABLE 5)

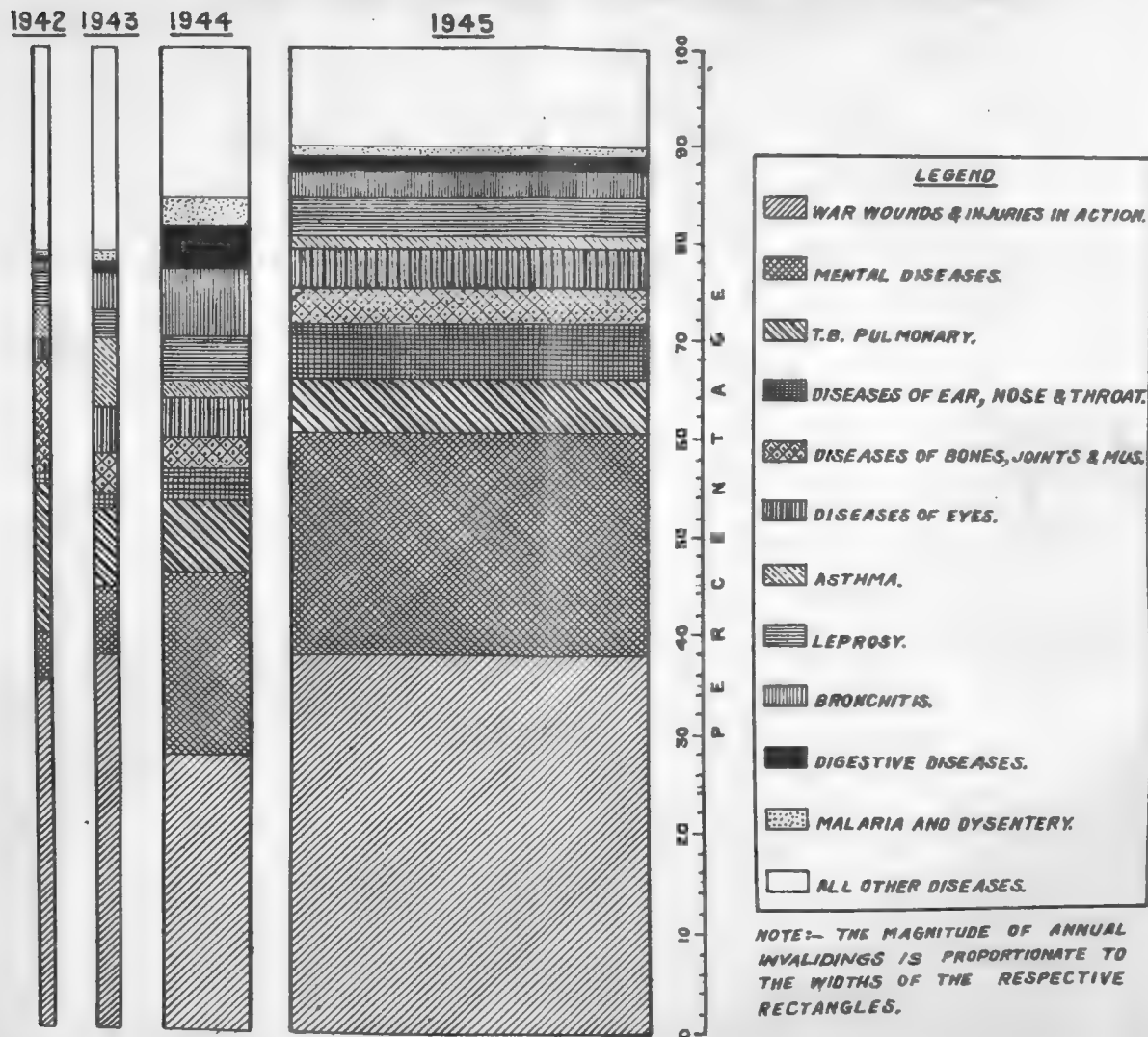
TABLE 5
Invalidings among VCOs and IORs from Burma Front.

Diseases	1942		1943		1944		1945		Total all Years	
	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate
1. Total	124	35.94	219	38.49	501	28.15	2,799	38.09	3,643	36.28
Schizophrenia ..	1	0.29	11	1.93	49	2.75	606	8.25	667	6.64
Manic depressive psychosis ..	4	1.16	6	1.05	12	0.67	92	1.25	114	1.13
Melancholia ..	..	..	2	0.35	..	..	..	..	2	0.02
Anxiety state ..	3	0.87	2	0.35	33	1.85	140	1.91	178	1.77
Hysteria ..	6	1.74	9	1.58	80	4.49	441	6.00	536	5.34
Mental deficiency ..	1	0.29	4	0.70	31	1.74	136	1.85	172	1.71
Other mental ..	1	0.29	6	1.05	127	7.13	255	3.47	389	3.87
2. Total	16	4.64	40	7.03	127	18.65	1,670	22.73	2,038	20.50
3. TB pulmonary ..	53	15.36	47	8.26	127	7.13	387	5.27	614	6.11
4. Diseases of ear, nose and throat ..	3	0.87	8	1.41	52	2.92	394	5.36	457	4.55
5. Diseases of eyes ..	6	1.74	26	4.57	53	2.98	315	4.29	400	3.98
6. Diseases of bones, joints and muscles ..	40	11.59	24	4.22	68	3.82	263	3.58	395	3.93
7. Leprosy ..	12	3.48	16	2.81	78	4.38	287	3.91	393	3.91
8. Bronchitis ..	4	1.16	21	3.69	120	6.74	211	2.87	356	3.54
9. Digestive diseases ..	1	0.29	7	1.23	87	4.89	125	1.70	220	2.19
10. Asthma ..	13	3.77	40	7.03	224	2.24	87	1.18	180	1.79
11. Other circulatory diseases ..	3	0.87	8	1.41	51	2.86	111	1.50	173	1.72
12. Pleurisy ..	2	0.58	6	1.05	47	2.64	87	1.18	142	1.41

TABLE 5—(Contd.)

Diseases	1942		1943		1944		1945		Total all Years	
	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate
13. TB others ..	19	5.51	27	4.75	19	1.06	67	0.91	132	1.31
14. Nervous diseases ..	23	6.67	12	2.11	20	1.12	68	0.93	123	1.22
15. Diseases of the blood and blood forming organs ..	3	0.87	12	2.11	44	2.47	42	0.57	101	1.00
16. Skin diseases ..	..	..	..	..	9	0.50	81	1.10	90	0.90
17. Pyorrhoec ..	1	0.29	3	0.53	9	0.50	49	0.67	62	0.62
18. Dysentery ..	..	..	3	0.53	32	1.80	18	0.24	53	0.53
19. Other infective diseases ..	..	..	4	0.70	15	0.84	22	0.30	41	0.41
20. Malaria ..	1	0.29	4	0.70	14	0.79	21	0.29	40	0.40
21. Other respiratory diseases ..	3	0.87	1	0.18	6	0.34	12	0.16	22	0.22
22. Diabetes ..	3	0.87	..	..	5	0.28	12	0.16	20	0.20
23. Inanition ..	3	0.87	10	1.76	1	0.06	4	0.05	18	0.18
24. Nephritis ..	1	0.29	3	0.53	4	0.22	8	0.11	16	0.16
25. Syphilis ..	..	..	1	0.18	3	0.17	12	0.16	16	0.16
26. Hernia ..	..	..	8	1.41	..	..	..	0.08	8	0.08
27. Calculi of kidney ..	..	..	..	..	..	..	6	0.06	6	0.06
28. Other venereal diseases ..	..	..	..	0.18	3	0.17	..	..	3	0.03
29. Filariasis ..	..	..	1	0.18	..	..	..	..	1	0.01
30. Endocarditis ..	..	..	1	0.18	..	..	..	..	1	0.01
Total ..	334	96.81	552	97.01	1,740	97.76	7,158	97.44	9,784	97.45
All other causes ..	11	3.19	17	2.99	40	2.24	188	2.56	256	2.55
Grand total ..	345	100.00	569	100.00	1,780	100.00	7,346	100.00	10,040	100.00

COMPARATIVE INVALIDINGS DUE TO SELECTED CAUSES IN BURMA AMONG THE V.C.O.s. AND I.O.R.s. DURING 1942-'45



(SEE TABLE 5)

TABLE 6
Invalidings among NCs(E) from Burma Front.

Diseases	1942		1943		1944		1945		Total all Years	
	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate
1. Gunshot wounds	..	..	6	2.52	..	0.43	28	1.73	34	1.45
Shell wounds	..	..	1	..	..	..	8	0.49	10	0.42
Bomb wounds	1	4.00	3	0.42	..	..	5	0.31	7	0.30
Other wounds	..	..	3	1.26	..	..	6	0.37	9	0.38
Fractures	5	20.00	7	2.94	..	0.21	80	4.94	93	3.96
Injuries in action	..	..	..	..	2	0.43	5	0.31	7	0.30
1. Total	6	24.00	17	7.14	5	1.07	132	8.15	160	6.81
Schizophrenia	..	..	4	1.68	24	5.13	386	23.84	414	17.62
Manic depressive psychosis	1	4.00	1	0.42	2	0.43	42	2.59	46	1.96
Melancholia	..	..	..	..	..	..	..	..	..	..
Anxiety state	1	4.00	1	0.42	10	2.14	42	2.59	54	2.30
Hysteria	..	..	6	2.52	39	8.33	160	9.88	205	8.72
Mental deficiency	..	..	1	0.42	23	4.91	118	7.29	142	6.04
Other mental	..	..	1	0.42	44	9.40	142	8.77	187	7.96
2. Total	2	8.00	14	5.88	142	30.34	890	54.97	1,048	44.59
3. TB pulmonary	8	32.00	14	5.88	59	12.61	101	6.24	182	7.74
4. Bronchitis	1	4.00	33	13.87	65	13.89	66	4.08	165	7.02
5. Leprosy	1	4.00	22	9.24	51	10.90	52	3.21	126	5.36
6. Diseases of the bones, joints and muscles	3	12.00	12	5.04	21	4.49	65	4.01	101	4.30
7. Diseases of the eyes	..	..	8	3.36	19	4.06	52	3.25	79	3.36
8. Diseases of the ear, nose and throat	..	..	4	1.68	2	0.43	71	4.38	77	3.28
9. Other circulatory diseases	..	..	1	0.42	24	5.13	27	1.67	52	2.21
10. Asthma	2	8.00	11	4.62	15	3.20	18	1.11	46	1.96
11. Nervous diseases	..	..	8	3.36	8	1.71	17	1.05	33	1.41
12. Digestive diseases	..	..	10	4.20	3	0.64	19	1.17	32	1.36

TABLE 6—(Contd.)

Diseases	1942		1943		1944		1945		Total all Years	
	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate
13. Inanition	1	4.00	24	10.08	3	0.64	2	0.12	26	1.11
14. TB others	6	2.52	8	1.71	15	0.93	25	1.06
15. Pleurisy	13	5.46	3	0.64	15	0.93	23	0.98
16. Malaria	9	3.78	7	1.50	4	0.25	20	0.85
17. Other infective diseases	1	0.06	17	0.72
18. Diseases of the blood and blood forming organs	3	1.26	4	0.86	7	0.43	14	0.60
19. Pyorrhoea	2	0.84	2	0.43	6	0.37	10	0.42
20. Skin diseases	2	0.43	8	0.49	10	0.42
21. Syphilis	4	0.85	2	0.12	6	0.25
22. Nephritis	1	0.21	4	0.25	5	0.21
23. Other respiratory diseases	1	4.00	1	0.42	..	..	3	0.19	5	0.21
24. Dysentery	3	0.19	3	0.13
25. Hernia	3	1.26	..	..	..	..	3	0.13
26. Diabetes	1	0.06	1	0.04
27. Endocarditis	1	0.42	..	..	..	..	1	0.04
28. Calculi of kidney	1	0.42	..	..	..	..	1	0.04
29. Other venereal diseases	1	0.21	..	..	1	0.04
Total	25	100.00	217	91.18	449	95.94	1,581	97.65	2,272	96.68
All other causes	21	8.82	19	4.06	38	2.35	78	3.32
Grand total	25	100.00	238	100.00	468	100.00	1,619	100.00	2,350	100.00

Section IV

CEYLON

Japanese High Command declared Japan at war with Britain and U.S.A. since the dawn of 7 December, 1941. Japan surrendered unconditionally on 15 August, 1945. During this period there were days on which Japanese attack had assumed frighteningly virulent form. Closest to India, they occupied the Andaman islands on 23 March, 1942 and bombed Trincomalee (Ceylon) on 9 April, 1942, damaging the harbour and its aerodrome. Having occupied Burma, they were closing in on the Assamese border and were successful in isolating Kohima by April 11, 1944. It will be remembered that SEAC was formed towards the end of 1943. Ceylon formed part of the operational areas of this headquarters. Allied forces, including Indian troops, were stationed in Ceylon from 1942 onwards.

VCOs AND IORs

In Tables 7 and 8, therefore, are given figures of invalidments among the VCOs and IORs and NCs(E) during this period. It will be seen from Table 7 that total invalidments among the VCOs and IORs increased from year to year till 1944. In 1945 there was a sudden fall from the figures of invalidments from those of 1944.

WAR WOUNDS AND INJURIES

As has been mentioned above there was very little fighting, barring an enemy bombing raid, on the territory of Ceylon during the period under consideration. It may be due to this reason that there were only 2 invalidments due to war wounds and injuries in 1942, 7 in 1943, 11 in 1944 and 7 in 1945. The relative importance of invalidments due to war wounds and injuries in action to total invalidments was also very low. It ranged between 6.67 per cent. during 1943 to 12.50 per cent. during 1942. On an average during this period war wounds and injuries contributed 7.89 per cent. of all invalidments. A large majority of these invalidments were due to fractures.

MENTAL DISEASES

There were 2 invalidments in 1942, 8 in 1943, 62 in 1944 and 8 in 1945. 1944 is the year of the largest contribution to mental invalidments of these four years. In this year 39 per cent. of all mental invalidments were caused by Schizophrenia, about 13 per cent. each of manic depressive psychosis and hysteria, and about 8 per cent. by anxiety state.

Among the rest of diseases pulmonary TB was responsible for about one third of all invalidments during 1942 and 1943. During 1943, leprosy, with a relative rate of 11.43 per cent.; eye diseases, with a relative rate of 9.52 per cent. and diseases of bone, joints and muscles, with a relative rate of 6.67 per cent. were other important causes of

invalidments. Malaria also caused one invalidment each in 1943 and 1944. In 1944 pulmonary TB, diseases of bones, joints and muscles, and asthma each caused more than 5 per cent. invalidments. Another important cause of invalidments was nervous diseases. TB pulmonary was not so important in 1945. The highest contribution in this year was made by 'other circulatory diseases' with a relative rate of 12.66 per cent. ENT diseases also bore a percentage rate of 11.39 to the total. Diseases of bones, joint and muscles, bronchitis, nervous diseases and pyorrhoea were some of the other causes which contributed at a rate higher than 5 per cent. in 1945.

NCs(E)

Invalidments among the NCs(E) increased gradually from 1942 to 1945. There was only 1 invalidment, due to asthma, in 1942, 19 from all causes in 1943, 30 in 1944 and 54 in 1945. They were much less than the corresponding figures for the VCOs/IORs every year.

WAR WOUNDS AND INJURIES

There was one invalidment due to injuries in action during 1943 and two and three respectively due to fractures in 1944 and 1945 (Table 8).

MENTAL DISEASES

It was only during 1944 that mental diseases caused any invalidments among the NCs(E). Of the 12 such invalidments in this year, 5 (or about 42 per cent.) were caused by Schizophrenia, 3 by hysteria, 1 by anxiety state and 1 by manic depressive psychosis. The remaining 2 were caused by undefined causes in this group.

Pulmonary TB was an important cause of invalidments during 1943 and 1945. The relative percentages in the two years were 57.89 per cent. and 29.63 per cent respectively. The relative contribution (at 3.33 per cent.) of this disease during 1944, being a very low figure comparatively, stands in strange contrast to that of the other two years.

Eye diseases, pleurisy, leprosy, digestive and nervous diseases were the other specific diseases that caused invalidments during 1943. Eye diseases disabled two persons and each of the other diseases mentioned here caused one invalidment.

It was the diseases of bones, joints and muscles, asthma, 'other circulatory diseases', pyorrhoea, TB pulmonary and nervous diseases only which caused invalidments during 1944.

During 1945, pulmonary TB, leprosy, diseases of bones, joints and muscles and 'TB other than pulmonary' each invalided at a rate higher than 5 per cent. to the total. Pleurisy, 'other circulatory diseases', asthma and nervous diseases each caused two invalidments. Pyorrhoea, nephritis, syphilis and other respiratory diseases each caused one invalidment during this year.

TABLE 7
Invalidings among VCOs and IORs from Ceylon.

Diseases	1942		1943		1944		1945		Total all Years	
	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate
Gunshot wounds ..	..	..	..	..	1	0.70	2	2.53	3	0.88
Shell wounds ..	..	..	..	..	2	1.41	..	..	2	0.58
Bomb wounds ..	1	6.25	1	0.95	1	0.70	..	..	3	0.88
Other wounds ..	..	..	..	..	..	..	1	1.27	1	0.29
Fractures ..	1	6.25	6	5.71	7	4.93	4	5.06	18	5.26
Injuries in action ..	..	..	..	..	..	..	..	..	..	..
1. Total ..	2	12.50	7	6.67	11	7.75	7	8.86	27	7.89
Schizophrenia ..	..	..	..	..	24	16.90	..	..	25	7.31
Manic depressive psychosis ..	..	..	1	0.95	8	5.63	..	..	9	2.63
Melancholia ..	..	..	1	0.95	1	0.70	..	..	1	0.29
Anxiety state ..	1	6.25	..	..	5	3.52	1	1.27	8	2.34
Hysteria ..	..	..	3	2.86	8	5.63	3	3.80	14	4.09
Mental deficiency ..	1	6.25	1	0.95	..	..	3	3.80	5	1.46
Other mental diseases ..	..	..	1	0.95	16	11.27	1	1.27	18	5.26
2. Total ..	2	12.50	8	7.62	62	43.66	8	10.13	80	23.39
3. Pulmonary TB ..	5	31.25	32	30.48	14	9.86	2	2.53	53	15.50
4. Diseases of bones, joints and muscles ..	1	6.25	7	6.67	10	7.04	8	10.13	26	7.60
5. Bronchitis ..	..	..	3	2.86	2	1.41	5	6.33	10	2.92
6. Pleurisy ..	..	..	1	0.95	2	1.41	2	2.53	5	1.46
7. Leprosy ..	1	6.25	12	11.43	..	..	..	..	13	3.80
8. Diseases of the eyes ..	..	..	10	9.52	..	..	3	3.80	13	3.80
9. Digestive diseases ..	..	..	3	2.86	3	2.11	..	..	6	1.75
10. Diseases of ear, nose and throat ..	1	6.25	2	1.90	3	2.11	9	11.39	15	4.39
11. Other circulatory diseases ..	..	..	3	2.86	3	2.11	10	12.66	16	4.68
12. Asthma ..	..	..	4	3.81	8	5.63	2	2.53	14	4.09

TABLE 7—(Contd.)

Diseases	1942		1943		1944		1945		Total all Years	
	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate
13. Nervous diseases ..	1	6.25	4	3.81	6	4.22	4	5.06	15	4.39
14. TB others ..	..	..	1	0.95	1	0.70	1	1.27	3	0.88
15. Diseases of the blood and blood forming organs ..	..	..	..	..	1	0.70	..	..	1	0.29
16. Malaria ..	..	..	1	0.95	..	0.70	..	..	2	0.58
17. Pyorrhoec ..	1	6.25	..	..	..	..	4	5.06	5	1.46
18. Nephritis ..	..	..	..	..	2	1.41	1	1.27	1	0.29
19. Diabetes ..	..	..	..	..	..	..	1	1.27	3	0.88
20. Syphilis ..	..	..	..	..	2	1.41	1	1.27	1	0.29
21. Other respiratory diseases ..	1	6.25	..	..	..	..	..	..	3	0.88
22. Peritonitis ..	..	..	1	0.95	..	..	..	..	1	0.29
23. Calculi of kidney ..	..	..	..	..	1	0.70	..	..	1	0.29
24. Skin diseases ..	..	..	..	..	..	..	1	1.27	1	0.29
25. Venereal diseases others ..	..	..	..	..	1	0.70	..	..	1	0.29
Total ..	15	93.75	99	94.29	133	93.66	69	87.34	316	92.40
All other causes ..	1	6.25	6	5.71	9	6.34	10	12.66	26	7.60
Grand total ..	16	100.00	105	100.00	142	100.00	79	100.00	342	100.00

TABLE 8
Invalidings among NCs(E) from Ceylon.

Diseases	1942		1943		1944		1945		Total all Years	
	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate
Fractures	5.26	2	6.67	3	5.56	5	4.81
Injuries in action	1	5.26	..	..	..	..	1	0.96
1. Total	1	5.26	2	6.67	3	5.56	6	5.77
Schizophrenia	5	16.67	..	..	5	4.81
Manic depressive psychosis	1	3.33	..	..	1	0.96
Anxiety state	1	3.33	..	..	1	0.96
Hysteria	3	10.00	..	..	3	2.88
Other mental diseases	2	6.67	..	..	2	1.92
2. Total	12	40.00	..	..	12	11.54
3. Pulmonary TB	57.89	1	3.33	16	29.63	28	26.92
4. Diseases of bones, joints and muscles	11	..	4	13.33	4	7.41	8	7.69
5. Bronchitis	3	5.56	3	2.88
6. Pleurisy	1	5.26	..	..	2	3.70	3	2.88
7. Leprosy	1	10.52	..	..	7	12.96	8	7.69
8. Diseases of the eyes	2	5.26	..	..	..	..	2	1.92
9. Digestive diseases	1	..	3	10.00	2	3.70	1	0.96
10. Other circulatory diseases	100.00	..	..	3	10.00	2	3.70	5	4.81
11. Asthma ..	1	..	1	5.26	1	3.33	2	3.70	6	5.77
12. Nervous diseases	3	5.56	4	3.85
13. TB others	3	2.88
14. Diseases of the blood and blood forming organs	2	3.70	2	1.92
15. Pyorrhoea	2	6.67	1	1.85	3	2.88
16. Nephritis	1	1.85	1	0.96
17. Syphilis	1	1.85	1	0.96
18. Other respiratory diseases	1	0.96
Total ..	1	100.00	18	94.74	28	93.33	50	92.59	97	93.27
All other causes	1	5.26	2	6.67	4	7.41	7	6.73
Grand total ..	1	100.00	19	100.00	30	100.00	54	100.00	104	100.00

Section V

SOUTH EAST ASIA COMMAND

South East Asia Command was established on 12 November, 1943. It included Ceylon, Burma, Siam, Malaya, Java, Sumatra, French Indo China south of 16° North and Borneo. For the purpose of Tables 9 and 10, however, invalidment figure for the years 1944 and 1945 from Burma and Ceylon have been excluded. It will be seen that the total invalidments for the VCOs and IORs during these years were 855 (46.77 per cent.) and 973 (53.23 per cent.) respectively. These figures for the NCs(E) were 420 (75.68 per cent.) and 135 (24.32 per cent.) respectively.

VCOs AND IORs

WAR WOUNDS AND INJURIES

In both these years more than 2/5ths of the total invalidments were caused by war wounds and injuries (Table 9). The actual number of such invalidments were 366 with a relative invalidment rate of 42.80 per cent. in 1944 and 450 with a relative invalidment rate of 46.25 per cent. in 1945, and an overall relative rate of 44.64 per cent. In both these years gunshot wounds alone invalidated more than 50 per cent. of the personnel incapacitated due to war wounds and injuries. The contrast in these two years, however, lies in the relative importance assumed by causes other than gunshot wounds within this group. During 1944, fractures caused invalidment at a relative rate of 9.47 per cent. out of all invalidments and 22.13 per cent. of invalidments due to war wounds and injuries. These percentages for bomb wounds are 4.21 and 9.84 respectively. In 1945, on the other hand, it is the shell wounds which are the largest contributors towards invalidments, next to gunshot wounds, in this group. Its relative rate of contribution to the total invalidment is 5.86 per cent, which is 12.7 per cent of war wounds and injury invalidments. Next to shell wounds were the bomb wound invalidments. Fractures also contributed almost equally with the bomb wounds. On the whole, however, fractures assumed the second importance to gunshot wounds in respective invalidments during these two years.

MENTAL DISEASES

Invalidments due to these diseases rose from 36 in 1944 to 220 in 1945. Similar increase is exhibited by the relative rates, which were 4.21 per cent. in 1944 and 22.61 per cent. in 1945. In 1944, Hysteria contributed the largest percentage of invalidment to the total mental diseases. Next to it was schizophrenia. During 1945, however, Schizophrenia caused the largest number of invalidments in this group of diseases. Hysteria came next to it followed by mental deficiency.

Among the diseases other than 'war wounds and injuries' and 'mental' diseases the largest contributor to the total was the group

"bones, joints and muscles" in 1944. Its relative rate is 10.53 per cent. The special feature which distinguishes the two years, which might be kept in mind, is the fact that invalidments due to war wounds and injuries and mental diseases accounted for 47 per cent. of total invalidments in 1944 and 68.86 per cent. in 1945. This apparently leaves a larger relative percentage to be covered by the other diseases in 1944 than in 1945. It is probably due to this that individual relative percentages of diseases, other than the two groups mentioned above, were higher during 1944 than during 1945 except for leprosy, diseases of eyes, circulatory diseases, pyorrhoecia and calculi of kidney. For instance, invalidments due to diseases of bones, joints and muscles meant 10.53 per cent. of the total in 1944 and 3.70 per cent. during 1945. These percentages for pulmonary TB were 5.73 and 2.67 respectively.

During 1944, there were no other diseases which contributed at a rate of more than 5 per cent. towards the total invalidments. But those that meant more than 1 per cent. invalidments were diseases of eyes; bronchitis; ENT; tuberculosis other than pulmonary; asthma; pleurisy; dysentery and other circulatory diseases. During 1945, there was no diseases at all among the group now being considered which contributed at a rate of 5 per cent. or more. But those that contributed at a rate of 1 or more than 1 per cent. to total invalidments were the following:—

Bones, joints and muscles; bronchitis; pulmonary TB; other circulatory diseases; asthma; nerves; leprosy and digestion.

The significant addition during 1945, although not at a very substantial scale, were the pyorrhoecia invalidments. This disease caused nine invalidments in 1945 at a relative rate of 0.92 per cent. and four in 1944.

Dysentery and malaria caused ten and seven invalidments respectively during 1944 but seem to have been controlled soon after so that in 1945 they did not cause any invalidments at all.

Skin diseases meant, on the whole, about one half of 1 per cent. invalidments of the total during the two years.

NC₃(E)

Total invalidments during 1945 fell to less than one third of those during 1944 (Table 10). Actual figures were 135 and 420 respectively. It can generally be said that, except for mental diseases, invalidment figures during 1945 were very much lower than the corresponding figures for each diseases during 1944.

WAR WOUNDS AND INJURIES

Such invalidments formed a comparatively small percentage of the total during the two years. Their actual number fell to less than one third in 1945 of that of 1944. In these small totals more than 50 per cent. of all invalidments due to war wounds and injuries were caused

by fractures in 1944. Second in importance were gunshot wounds invalidments. During 1945, on the other hand, shell wounds caused the highest invalidments, in this group. Fractures occupied the second position to shell wounds in relative importance.

MENTAL DISEASES

Mental diseases invalidments registered an extraordinarily large relative rise in their incidence during 1945 as against the corresponding figure in 1944. The total figure during 1944 was 13 which rises to 72 in 1945. The jump in the relative invalidment rate is particularly notable. During 1945, these diseases caused more than 50 per cent. of total invalidments against a rate of 1/33 of the total in 1944.

Hysteria, which occupied the first position from the point of view of numbers invalided in 1944, fell down to the third place in 1945. Mental deficiency and schizophrenia are the two causes which contributed towards the total at a rate larger than that of hysteria during this year.

Of the remaining nine diseases that have contributed some share or the other during 1945 to total invalidments, diseases of eyes; pulmonary TB; diseases of bones; joints and muscles; bronchitis; nervous; asthma and inanition are the few that have caused more than 1 per cent. of total invalidments.

During 1944, on the other hand, bronchitis; inanition; infective diseases; asthma; pulmonary TB; and diseases of eyes caused each more than 5 per cent. invalidments in the total. Among themselves they took the order of importance mentioned above. The place of inanition deserves special notice.

A fall in the invalidments due to inanition is noticeable in 1945 from 34 to 2. Other diseases which have caused more than 1 but less than 5 per cent. of total invalidments are the following given in descending order:—

Diseases of bones; joints and muscles; digestive diseases; diseases of ENT; circulatory diseases; malaria; leprosy and pleurisy.

Another fact which emerges from this table in respect of NCs(E) is the comparatively high percentage of invalidation caused by the undefined group of diseases—"all other causes" in the two years. They caused 10.71 per cent. of total invalidings during 1944 but only 1.48 per cent. during 1945.

TABLE 9

Invalidings among VCOs and IORs from South East Asia Command.

Diseases	1944		1945		Total all Years	
	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate
Gunshot wounds ..	188	21.99	250	25.69	438	23.96
Shell wounds ..	29	3.39	57	5.86	86	4.70
Bomb wounds ..	36	4.21	54	5.55	90	4.92
Other wounds ..	29	3.39	24	2.47	53	2.90
Fractures ..	81	9.47	53	5.45	134	7.33
Injuries in action ..	3	0.35	12	1.23	15	0.82
1. Total ..	366	42.80	450	46.25	816	44.64
Schizophrenia ..	7	0.82	79	8.12	86	4.70
Manic depressive psychosis ..	2	0.23	17	1.75	19	1.04
Anxiety state ..	4	0.47	9	0.92	13	0.71
Hysteria ..	19	2.22	56	5.76	75	4.10
Mental deficiency ..	..	..	30	3.08	30	1.64
Other mental ..	4	0.47	29	2.98	33	1.80
2. Total ..	36	4.21	220	22.61	256	14.00
3. Diseases of bones, joints and muscles	90	10.53	36	3.70	126	6.89
4. Diseases of the eyes	35	4.09	44	4.52	79	4.32
5. TB pulmonary ..	49	5.73	26	2.67	75	4.10
6. Bronchitis ..	31	3.63	29	2.98	60	3.28
7. Asthma ..	21	2.46	16	1.64	37	2.02
8. Diseases of the ear, nose and throat ..	23	2.69	7	0.72	30	1.64
9. Nervous diseases ..	15	1.75	15	1.54	30	1.64
10. Other circulatory diseases ..	10	1.17	17	1.75	27	1.48
11. Pleurisy ..	21	2.46	5	0.51	26	1.42
12. TB others ..	21	2.46	5	0.51	26	1.42
13. Other digestive diseases ..	12	1.40	11	1.13	23	1.26
14. Other infective diseases ..	18	2.11	4	0.41	22	1.20
15. Leprosy ..	5	0.58	14	1.44	19	1.04
16. Inanition ..	14	1.64	1	0.10	15	0.82
17. Pyorrhoea ..	4	0.47	9	0.92	13	0.71
18. Dysentery ..	10	1.17	..	..	10	0.55
19. Skin diseases ..	5	0.58	4	0.41	9	0.49
20. Diabetes ..	5	0.58	3	0.31	8	0.44
21. Malaria ..	7	0.82	..	..	7	0.38
22. Diseases of the blood and blood forming organs ..	3	0.35	3	0.31	6	0.33
23. Nephritis ..	5	0.58	1	0.10	6	0.33
24. Syphilis ..	2	0.23	1	0.10	3	0.16
25. Other respiratory diseases ..	1	0.12	..	..	1	0.05
26. Calculi of kidney ..	..	..	1	0.10	1	0.05
Total ..	809	94.62	922	94.76	1,731	94.69
All other causes ..	46	5.38	51	5.24	97	5.31
Grand total ..	855	100.00	973	100.00	1,828	100.00

TABLE 10

Invalidings among NCs(E) from South East Asia Command.

Diseases	1944		1945		Total all Years	
	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate	Actual	Relative Invaliding Rate
Gunshot wounds ..	9	2.14	1	0.74	10	1.80
Shell wounds ..	1	0.24	6	4.44	7	1.26
Bomb wounds ..	2	0.48	1	0.74	3	0.53
Other wounds ..	1	0.24	..	..	1	0.18
Fractures ..	28	6.67	4	2.96	32	5.77
Injuries in action ..	6	1.43	1	0.74	7	1.26
1. Total ..	47	11.19	13	9.63	60	10.81
Schizophrenia ..	3	0.71	18	13.33	21	3.78
Manic depressive psychoses ..	1	0.24	4	2.96	5	0.90
Anxiety state ..	..	..	2	1.48	2	0.36
Hysteria ..	6	1.43	13	9.63	19	3.42
Mental deficiency ..	..	..	25	18.52	25	4.50
Other mental ..	3	0.71	10	7.40	13	2.34
2. Total ..	13	3.09	72	53.33	85	15.31
3. Bronchitis ..	77	18.33	4	2.96	81	14.59
4. Diseases of the eyes ..	22	5.24	18	13.33	40	7.21
5. TB pulmonary ..	25	5.95	11	8.15	36	6.49
6. Inanition ..	34	8.09	2	1.48	36	6.49
7. Other infective diseases ..	30	7.14	..	..	30	5.41
8. Asthma ..	27	6.43	2	1.48	29	5.23
9. Diseases of bones, joints and muscles ..	18	4.29	5	3.70	23	4.14
10. Other digestive diseases ..	15	3.57	..	..	15	2.70
11. Pyorrhoea ..	10	2.38	1	0.74	11	1.98
12. Diseases of ear, nose and throat ..	10	2.38	..	..	10	1.80
13. Other circulatory diseases ..	8	1.90	..	..	8	1.44
14. Nervous diseases ..	3	0.71	4	2.96	7	1.26
15. Malaria ..	7	1.67	..	..	7	1.26
16. Leprosy ..	6	1.43	..	..	6	1.08
17. Pleurisy ..	5	1.19	..	..	5	0.90
18. Skin diseases ..	4	0.95	..	..	4	0.72
19. TB others ..	3	0.71	..	..	3	0.54
20. Dysentery ..	3	0.71	..	..	3	0.54
21. Syphilis ..	2	0.48	1	0.74	3	0.54
22. Nephritis ..	2	0.48	..	..	2	0.36
23. Diabetes ..	2	0.48	..	..	2	0.36
24. Diseases of the blood and blood forming organs ..	1	0.24	..	..	1	0.18
25. Other respiratory diseases ..	1	0.24	..	..	1	0.18
26. Calculi of kidney ..	..	..	..	..	..	..
Total ..	375	89.29	133	98.52	508	91.53
All other causes ..	45	10.71	2	1.48	47	8.47
Grand total ..	420	100.00	135	100.00	555	100.00

TABLE 11
Invalidings among VCOs and IORs from Persia and Iraq Command.

Diseases	1940		1941		1942		1943		1944		1945		Total all Years	
	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate
1. Gunshot wounds	3	4.69	8	2.21	6	1.97	59	6.15	15	2.88	91	4.11
Shell wounds	1.56	..	1.10	..	1.31	73	7.60	8	1.54	81	3.66
Bomb wounds	1	3.12	4	1.66	4	0.65	17	1.77	1	0.19	17	0.77
Other wounds	2	4.69	6	7.73	2	7.87	84	8.75	4	0.77	31	1.40
Fractures	3	..	28	..	24	0.33	17	1.77	33	6.33	172	7.76
Injuries in action	1	0.33	17	1.77	4	0.77	22	0.99
1. Total	9	14.06	46	12.71	37	12.13	257	26.77	65	12.48	414	18.68
Schizophrenia	2	3.12	9	2.49	8	2.62	41	4.27	20	3.84	80	3.61
Manic depressive psychosis	1	1.56	8	2.21	9	2.95	28	2.92	17	3.26	63	2.84
Melancholia	1	0.33	1	0.10	..	..	2	0.09
Anxiety state	0.83	3	0.98	9	0.94	..	1.15	21	0.95
Hysteria	2	3.12	12	3.31	11	3.61	19	1.98	28	5.37	72	3.25
Mental deficiency	3	0.83	2	0.65	1	0.10	3	0.58	9	0.41
Other mental diseases	1	1.56	9	2.49	8	2.62	19	1.98	9	1.73	46	2.08
2. Total	6	9.37	44	12.15	42	13.77	118	12.29	83	15.93	293	13.22
3. Pulmonary TB	8	12.50	43	11.88	43	14.10	165	17.19	69	13.24	329	14.85
4. Diseases of bones, joints and muscles	1	25.00	4	6.25	61	16.85	24	7.87	63	6.56	42	8.06	194	8.75
5. Bronchitis	4	6.25	8	2.21	17	5.57	27	2.82	35	6.72	91	4.11
6. Pleurisy	1	1.56	4	1.10	12	3.93	53	5.52	36	6.91	106	4.78
7. Leprosy	3	4.69	28	7.73	9	2.95	21	2.19	15	2.88	76	3.43
8. Diseases of the eyes	1	1.56	20	5.52	36	11.80	18	1.87	25	4.80	100	4.51
9. Other digestive diseases	2	3.12	1	0.28	3	0.98	7	0.73	16	3.07	29	1.31
10. Diseases of ear, nose and throat	1	25.00	3	4.69	8	2.21	1	0.33	10	1.04	17	3.26	40	1.81
11. Other circulatory diseases	9	2.49	8	2.62	24	2.50	20	3.84	61	2.75

TABLE 11—(Contd.)

Diseases	1940		1941		1942		1943		1944		1945		Total all Years	
	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate
12. Asthma	4	6.25	10	2.76	13	4.26	10	1.04	18	3.45	55	2.48
13. Nervous diseases	4	6.25	20	5.52	8	2.62	19	1.98	10	1.92	61	2.75
14. TB others	27	7.46	22	7.21	16	1.67	5	0.96	70	3.16
15. Diseases of the blood and blood forming organs	1	1.56	5	1.38	..	..	..	..	2	0.38	8	0.36
16. Dysentery	1	0.28	..	0.65	1	0.10	2	0.38	4	0.18
17. Other infective diseases	4	1.10	2	..	..	..	1	0.19	7	0.32
18. Inanition	0.28	..	..	1	0.10	..	..	..	..
19. Malaria	2	3.12	..	..	..	..	4	0.42	6	1.15	2	0.09
20. Pyorrhoea	25.00	..	..	..	..	1	0.33	6	0.63	..	..	13	0.59
21. Nephritis	0.55	2	0.65	1	0.10	1	0.19	7	0.32
22. Diabetes	2	..	1	0.33	3	0.31	3	0.58	6	0.27
23. Syphilis	1	1.56	2	0.55	5	1.64	2	0.21	8	1.54	18	0.81
24. Other respiratory diseases	2	0.65	..	..	..	..	2	0.09
25. Filariasis	1	0.33	..	..	..	..	1	0.05
26. Endocarditis	4	1.31	..	..	..	..	4	0.18
27. Peritonitis	1	0.33	1	0.10	4	0.77	6	0.27
28. Calculi of kidney	2	0.21	3	0.58	5	0.23
29. Skin diseases	1	0.10	..	..	..	..
30. Other VD	2	0.10	..	..	1	0.05
Total ..	3	75.00	53	82.81	344	95.03	294	96.39	830	86.46	486	93.28	2,010	90.70
All other causes ..	1	25.00	11	17.19	18	4.97	11	3.61	130	13.54	35	6.72	206	9.30
Grand total ..	4	100.00	64	100.00	362	100.00	305	100.00	960	100.00	521	100.00	2,216	100.00

TABLE 12

Invalidings among NCs(E) from Persia and Iraq Command.

Diseases	1940		1941		1942		1943		1944		1945		Total all Years	
	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate
Gunshot wounds	1	0.25	1	0.73	2	0.31
Shell wounds	2	0.51	1	0.73	3	0.46
Other wounds	5	1.27	1	0.73	6	0.92
Fractures	2	3.08	28	7.09	2	1.46	32	4.89
Injuries in action	5	1.27	1	0.73	6	0.92
1. Total	2	3.08	41	10.38	6	4.38	49	7.49
Schizophrenia	2	4.25	..	..	16	4.05	19	13.87	37	5.65
Manic depressive psychosis	1.54	16	4.05	4	2.92	22	3.36
Melancholia	1	0.25	..	..	1	0.15
Hysteria	1	2.13	..	1.54	17	4.30	3	2.19	22	3.36
Mental deficiency	1	2.13	..	..	2	0.51	2	1.46	5	0.76
Other mental diseases ..	1	100.00	..	..	2	4.25	2	3.08	13	3.29	5	3.65	22	3.36
2. Total ..	1	100.00	..	..	6	12.76	4	6.15	65	16.46	33	24.09	109	16.64
3. Pulmonary TB	1	10.00	3	6.38	21	32.31	67	16.96	15	10.94	107	16.34
4. Diseases of bones, joints and muscles	1	10.00	4	8.51	5	7.69	27	6.84	12	8.76	49	7.49
5. Bronchitis	7	14.89	2	3.08	75	19.00	10	7.30	94	14.35
6. Pleurisy	1	2.13	1	1.54	17	4.30	9	6.57	28	4.27
7. Leprosy	1	10.00	5	10.64	5	7.69	18	4.55	4	2.92	33	5.04
8. Diseases of the eyes	1	10.00	3	6.38	4	6.15	12	3.04	5	3.65	25	3.82
9. Other digestive diseases	1	2.13	1	1.54	2	0.51	5	3.65	9	1.37
10. Diseases of ear, nose and throat	2	3.08	1	0.25	3	2.19	6	0.92
11. Other circulatory diseases	2	4.25	2	3.08	11	2.79	7	5.11	22	3.36
12. Asthma	3	6.38	1	1.54	6	1.52	7	5.11	17	2.60

TABLE 12—(Contd.)

Diseases	1940		1941		1942		1943		1944		1945		Total all Years	
	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate
13. Nervous diseases	3	30.00	2	4.25	2	3.08	14	3.54	3	2.19	24	3.66
14. TB others	2	4.25	5	7.69	4	1.01	..	..	11	1.68
15. Diseases of the blood and blood forming organs	1.54	..	..	1	0.73	1	0.15
16. Dysentery	1.54	1	0.25	1	0.73	3	0.46
17. Other infective diseases	2	20.00	..	..	..	..	1	0.25	..	..	1	0.15
18. Pyorrhoea	1	2.13	1	1.54	4	1.01	2	1.46	10	1.53
19. Nephritis	1.54	5	1.27	..	..	5	0.76
20. Diabetes	1.54	2	0.51	3	2.19	6	0.92
21. Syphilis	1	1.54	1	0.25	1	0.73	3	0.46
22. Other respiratory diseases	1.54	5	1.27	..	..	5	0.76
23. Filariasis	1.54	..	..	..	..	1	0.15
24. Endocarditis	1	1.54	..	..	..	..	1	0.15
25. Calculi of kidney	2	0.51	1	0.73	3	0.46
26. Skin diseases	2	0.51	1	0.73	3	0.46
Total	1	100.00	9	90.00	40	85.11	63	96.92	383	96.96	129	94.16	625	95.42
All other causes	1	10.0	7	14.89	2	3.08	12	3.04	8	5.84	30	4.58
Grand total	1	100.00	10	100.00	47	100.00	65	100.00	395	100.00	137	100.00	655	100.00

Section VI

MIDDLE EAST

VCOs AND IORs

Total number invalided on this front increased from year to year till 1942 after which it showed an alternate decrease and increase till 1945 (Table 13). It will be seen that there were comparatively few invalidments during the year 1940. The reason probably lies in the fact that the offensive in East Africa and elsewhere on this front started late in that year. It was on sixth November 1940 that Indian troops fought for the first time in East Africa. General Wavell's offensive in the North began on ninth December. The highest number invalided in this period was 1,047 in 1944 which formed 23·4 per cent. of all invalidings on this front. Invalidments in 1942 were 1,042 which formed 23·2 per cent. of the total. The years 1941, 1942 and 1943 were the most active years, from the point of view of fighting, in the Middle East. These years contributed 2,391 invalidments which is 53·4 per cent. of all invalidments during the whole period.

WAR WOUNDS AND INJURIES

Invalidments due to war wounds and injuries rose from year to year to a figure of 668 in the year 1942 after which they fell substantially except in 1945 when a sizable increase was registered. Considering that fighting during 1940 in which Indian troops took part lasted for a little more than a month, the proportionate contribution to invalidments made by this year as against 1941 is comparable. During 1941-45 the relative percentage of war wound invalidments varied from year to year. It was highest during 1942, at 64·10 per cent. and lowest during 1944, at 34·00 per cent. It will be seen that war wounds and injuries have invalided to an extent greater than 1/3rd during all these years except in 1940. Taking the whole period into consideration, these causes contributed to the total invalidments at a rate of 46·59 per cent.

As amongst war wounds and injuries the largest share in each year is formed by the gunshot wounds. The percentage figures take this trend 16·0 (1940); 68·8 (1941); 74·0 (1942); 53·2 (1943); 33·1 (1944) and 45·9 during 1945. The figures for the years 1941, 1942 and 1943 bear out the remark made earlier that these were the years of active fighting on this front. During 1940 the largest contributors to the total war wounds and injury invalidments were the fractures. They formed about 70 per cent. of the total. After 1941, however, fractures contributed at a comparatively low rate to the total war wound and injury invalidments. Over the whole period, they contributed 15·09 per cent. of all such invalidments. Another feature of these figures is the increasing share of shell wound and bomb wound invalidments, after 1941. During 1941, bomb wound caused 7·3 per cent. of all such invalidments as against 6·1 per cent. of fractures. During 1942, bomb and shell wounds each caused invalidments at a rate of 6·1 per cent. In 1943, however, bomb wounds caused thrice as many invalidments

as shell wounds. Their relative rates being 13.7 per cent. and 4.6 per cent. respectively. This picture gets reversed during 1944 and 1945 when shell wounds caused 28.9 per cent. and 20.7 per cent. respectively of all war wound and injury invalidments whereas the share of bomb wound invalidments was comparatively smaller. On the whole period also shell wounds caused relatively more invalidments than bomb wounds, their percentages being 13.5 per cent. and 8.3 per cent. respectively.

MENTAL DISEASES

Invalidments due to mental diseases increased from year to year till 1944 after which they exhibited a substantial decrease. The total of such invalidments during 1941, 1942 and 1943 formed 52.9 per cent. of all mental invalidments during this period. If to them, mental invalidments during 1944 are also added their percentage increases to 82.9 per cent. A table is appended below which gives from year to year the relative importance which specific diseases in this group of diseases have from the point of view of invalidments:—

Relative percentages of invalidments due to specific causes to total mental invalidments, during 1940-45.

1940	1941	1942
Hysteria .. 78.6	Manic depressive psychosis 26.1	Hysteria 34.7
Manic depressive psychosis 7.1	Hysteria 23.9	Schizophrenia .. 18.4
Others .. 14.3	Schizophrenia 17.4	Manic depressive psychosis 16.3
	Others .. 32.6	Anxiety state .. 10.2
Total .. 100.0	Total .. 100.0	Others .. 20.4
		Total .. 100.0
1943	1944	1945
Hysteria .. 38.5	Schizophrenia 39.5	Hysteria .. 50.0
Schizophrenia .. 25.3	Hysteria .. 20.0	Schizophrenia .. 23.9
Manic depressive psychosis 12.1	Manic depressive psychosis 12.4	Manic depressive psychosis 13.0
Anxiety state .. 6.6	Anxiety state 1.9	Anxiety state .. 6.5
Others .. 17.5	Others .. 26.2	Others .. 6.6
Total .. 100.0	Total .. 100.0	Total .. 100.0

All years

Hysteria ..	..	.. 33.6
Schizophrenia ..	..	.. 26.2
Manic depressive psychosis	..	.. 14.5
Anxiety state ..	..	.. 4.6
Others ..	..	.. 21.1
Total		.. 100.0

The main feature of this table is the relative importance of hysteria invalidments over all other causes in this group. It caused as many as 50 per cent. of all mental invalidments during 1945 and more than one third of all mental invalidments, during 1940, 1942 and 1943. The increasing importance of Schizophrenia invalidments can also be seen in this table from year to year. Unlike Schizophrenia, invalidments due to manic depressive psychosis show that this cause, which was one of the two most important ones for invalidments in 1940, continued to have a lower position after 1941. There were no invalidments due to anxiety state before 1941 but continued to contribute its share towards the total from 1942 to 1945. Taking the period as a whole into consideration the four important causes of invalidments in this group were as follows:—

Hysteria; schizophrenia; manic depressive psychosis and anxiety state.

The relative importance of invalidments due to the two groups of diseases already considered—viz. war wounds and injuries and mental diseases—was as follows:—

21·8 per cent. during 1940;
49·7 per cent. during 1941;
68·8 per cent. during 1942;
52·2 per cent. during 1943;
44·0 per cent. during 1944 and
60·1 per cent. during 1945.

It will be seen that during the three years 1941, 1942 and 1943 which were the years of most active operations on this front, more than 50 per cent. of invalidments were caused by the above mentioned two groups. The year 1945 also shows a high proportion of invalidments caused by these two groups. Relatively, therefore, other than these two groups of diseases during these four years contributed to the total invalidments at a comparatively lower rate. It is again due probably to this reason that during 1940 diseases of "bones, joints and muscles", nerves and pulmonary TB, each contributed a rate higher than 5 per cent. to the total invalidments. Circulatory diseases, other than endocarditis; tuberculosis other than pulmonary and respiratory diseases other than those specified in Table 13 each caused 3·97 per cent. of all invalidments in this year; diseases of eyes and ENT, pyorrhoea and diabetes each had a relative rate of 3·31 per cent.; pleurisy, digestive diseases and asthma had a relative rate of 2·65 per cent. and diseases of blood and blood forming organs caused 1·99 per cent. of all invalidments during this year. In 1941, also diseases of bones, joints and muscles, TB pulmonary contributed to the total invalidments at a rate higher than 5 per cent. Nervous diseases possessed relatively lower percentage than that in 1940 and contributed 4·27 per cent. of all invalidments. Eye diseases also contributed at the same rate. Bronchitis, diseases of ENT, leprosy and asthma were the other important causes of invalidments during 1941. The special feature of this year was the emergence of bronchitis and leprosy as distinct causes of invalidments, which was not so in 1940. These two diseases continued to figure as important causes of invalidments during the rest of the period except

for bronchitis during 1945. It is interesting to observe how diseases of bones, joints and muscles and pulmonary TB kept on contributing relatively more invalidments during the period under consideration than any other of the remaining causes, except for TB pulmonary in 1945. The spread of the rest of the diseases, from the point of view of important causes, continued to be the same during the period in 1941 with shifts in their relative positions. For example, during 1943 leprosy, which was less important before, occupied the third position among the diseases being considered now with a relative rate of 2.69 per cent. Another singular feature of the year 1943 was invalidments due to inanition with a relative rate of 1.94 per cent. Pleurisy also caused 1.4 per cent. of all invalidments in this year. It is again only in this year that filariasis, endocarditis, hernia, piles, peritonitis and calculi of kidney caused any invalidments at all during the period under consideration. Calculi of kidney caused some invalidments during 1944 and 1945 also. After 1943 circulatory diseases, other than endocarditis, also contributed at a rate higher than 1 per cent. to the total invalidments. During 1945 skin diseases also caused 1.01 per cent. of all invalidments.

The relative share towards total invalidments of "all other causes" other than those mentioned in the Table 13, was comparatively higher during 1940 and 1941 at 7.28 per cent. and 10.21 per cent. respectively, which fell to 1.82 per cent. during 1942 and showed gradual increasing trend to 3.82 per cent. in 1944 but showed a sudden increase to 12.56 per cent. during 1945.

NCs(E)

Total invalidments among the NCs(E) on this front increased gradually from 1941 onwards to 1944. In 1940 they exhibited a comparatively high figure of invalidments. During 1945 on the other end total invalidments among them showed a substantial fall as against those for 1944. Another point worth observation is that the invalidments among NCs(E) were less than those for the VCOs and IORs for every year. Their percentage to the total for the VCOs and IORs was as low as 5.37 per cent. during 1942 and, at its highest, it was 32.38 per cent. during 1944. During the period of less than two months that fighting took place in 1940, NCs(E) invalidments formed 36.42 per cent. of those for the VCOs and IORs.

WAR WOUNDS AND INJURIES

Relative importance of this group of causes for invalidment among the total causes is comparatively small. Its lowest rate was 10.28 per cent. during 1943 and the highest rate was 21.28 per cent. during 1945. In 1940, the figure was 3.64 per cent. This group of causes bore a relative percentage of 12.15 over the period under consideration, taken as a whole. The percentage which invalidments due to war wounds and injuries in action bore to those for the VCOs and IORs was very small. It was as low as 1.3 per cent. in 1942. In between invalidments

due to war wounds and injuries the largest share was accounted for by fractures. They caused all such invalidments during 1940, 50 per cent. during 1941, 67 per cent. during 1942, 41 per cent. during 1943 and 44 per cent. during 1944. It was only in 1945 that they caused invalidments at a comparatively lower rate in these groups. Even there the percentage was as high as 25 per cent. Gunshot wounds caused 30 per cent. of all such invalidments during 1945 and comparatively few invalidments in other years during the period under consideration. Another important cause which contributed invalidments at as high a rate as 34.5 per cent. during 1943 was "other wounds".

MENTAL DISEASES

It has generally been noticed that invalidments due to mental diseases are higher among the NCs(E) against their invalidments due to war wounds and injuries and also higher as against such invalidments for the VCOs and IORs. This table negatives both of these observations because mental invalidments are lower than invalidments due to war wounds and injuries during 1940, 1941 and 1945. They are, of course, a bit higher than the invalidments due to war wounds and injuries during 1942 and 1944 and are three times as high during 1943. Also, mental invalidments among the NCs(E) are lower than such invalidments among the VCOs and IORs during all the years. It must, however, be said in fairness that if mental invalidments as against total invalidments among the NCs(E) are weighted against the total invalidments among the VCOs and IORs, the picture gets reversed in every year. Another distinct feature of Table 14 is the fact that the relative rate of mental invalidments is always higher for the NCs(E) than that for the VCOs and IORs, except during 1941.

As between diseases included in the mental diseases schizophrenia was the most important single cause of invalidment particularly after 1942; till then it was one of the most important cause of invalidments. Hysteria was the most important cause in 1940 but occupied a relatively less important position during the later years. Anxiety state caused some invalidments during 1942, 1943 and 1944 only.

Among the other diseases due to which invalidments took place on this front pulmonary TB always contributed the highest number to the total, except in 1943 when diseases of bones, joints and muscles were the largest cause. Diseases of the bones, joints and muscles might safely be taken as the second most important cause of invalidment individually for every year, and taking the whole period into consideration. Eye diseases and bronchitis were the next two important causes throughout the period. All of these diseases contributed to the total invalidment at a rate higher than 5 per cent. During 1940 'other circulatory diseases', asthma and pyorrhoea were also comparatively important contributors to total invalidments. Among the diseases which caused more than 1 per cent. of total invalidments during 1940 were nephritis, diabetes and syphilis. Nephritis also caused more than 1 per cent. of total invalidments during 1945. Syphilis was responsible for similar contribution during 1943 and 1945 also. During 1941, 1943 and 1944 leprosy

also contributed at a fairly high rate (greater than 5 per cent.) to total invalidments. Tuberculosis other than pulmonary made a substantial contribution during 1942 and a contribution greater than 1 per cent. during the rest of the period, except 1940. A very special feature of 1943 is the share of inanition (6.38 per cent.) toward total invalidments. This disease does not figure at all as a cause of invalidments during the rest of period. Skin diseases, similarly, were a special feature of the year 1944 and 1945 when they caused invalidments at a rate higher than 1 per cent.

TABLE 13
Invalidings among VCOs and IORs from Middle East.

Diseases	1940		1941		1942		1943		1944		1945		Total all Years	
	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate
1. Gunshot wounds ..	3	1.99	112	26.60	494	47.41	211	22.74	118	11.27	225	25.24	1,163	25.95
Shell wounds ..	..	..	9	2.14	41	3.93	28	3.02	103	9.84	101	11.32	282	6.29
Bomb wounds ..	..	..	12	2.85	41	3.93	54	5.82	25	2.39	42	4.71	174	3.88
Other wounds ..	..	..	15	3.56	15	1.44	27	2.91	28	2.67	12	1.35	97	2.16
Fractures ..	13	8.61	10	2.38	74	7.10	68	7.33	74	7.07	93	10.43	392	7.41
Injuries in action ..	3	1.99	5	1.19	3	0.29	5	0.54	8	0.76	16	1.79	40	0.89
1. Total ..	19	12.58	163	38.72	668	64.10	393	42.35	356	34.00	489	54.82	2088	46.59
Schizophrenia ..	..	..	8	1.90	9	0.86	23	2.48	41	3.91	11	1.23	92	2.07
Manic depressive psychosis ..	..	0.66	12	2.85	8	0.77	11	1.18	13	1.24	6	0.67	51	1.14
Melancholia ..	..	..	1	0.24	1	0.10	..	..	..	..	..	..	2	0.04
Anxiety state ..	..	..	..	..	5	0.48	6	0.65	2	0.19	3	0.34	16	0.36
Hysteria ..	11	7.28	11	2.61	17	1.63	35	3.80	21	2.00	23	2.58	118	2.63
Mental deficiency ..	..	..	2	0.48	3	0.29	4	0.43	..	..	2	0.22	11	0.24
Other mental diseases ..	2	1.32	12	2.85	6	0.57	12	1.29	28	2.67	1	0.11	61	1.36
2. Total ..	14	9.27	46	10.93	49	4.70	91	9.81	105	10.02	46	5.16	351	7.85
3. Pulmonary TB ..	10	6.62	37	8.79	64	6.14	141	15.19	213	20.34	27	3.02	492	10.98
4. Diseases of bones, joints and muscles ..	26	17.22	41	9.74	82	7.87	65	7.00	54	5.16	48	5.38	316	7.05
5. Bronchitis ..	1	0.66	13	3.09	16	1.53	24	2.59	35	3.20	8	0.89	85	1.90
6. Pleurisy ..	4	2.65	2	0.48	5	0.48	13	1.40	23	2.13	19	2.13	78	1.74
7. Leprosy ..	1	0.66	7	1.66	18	1.73	25	2.69	30	2.86	15	1.68	96	2.14
8. Diseases of the eyes ..	5	3.31	18	4.27	23	2.21	16	1.72	22	2.10	27	3.02	111	2.48
9. Digestive diseases ..	4	2.65	4	0.95	2	0.19	4	0.43	8	0.76	5	0.56	27	0.60
10. Diseases of ear, nose and throat ..	5	3.31	10	2.38	18	1.73	13	1.40	32	3.06	29	3.25	107	2.39
11. Other circulatory diseases ..	6	3.97	..	..	5	0.48	3	0.32	17	1.62	10	1.12	41	0.91

TABLE 13—(Contd.)

Diseases	1940		1941		1942		1943		1944		1945		Total all years	
	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate
12. Asthma ..	4	2.65	5	1.19	10	0.96	18	1.94	20	1.91	8	0.89	65	1.45
13. Nervous diseases ..	14	9.27	18	4.27	36	3.46	24	2.59	39	3.72	8	0.89	139	3.10
14. TB others ..	6	3.97	2	0.48	14	1.34	12	1.29	10	0.95	13	1.46	57	1.27
15. Diseases of the blood and blood forming organs ..	3	1.99	..	..	1	0.10	3	0.32	5	0.48	4	0.45	16	0.36
16. Dysentery ..	..	..	..	..	3	0.29	2	0.22	..	..	..	..	5	0.11
17. Other infective diseases ..	1	0.66	..	..	1	0.10	3	0.32	6	0.57	4	0.45	15	0.33
18. Inanition ..	..	..	..	..	..	..	18	1.94	7	0.67	..	..	25	0.56
19. Malaria ..	..	..	..	..	1	0.10	3	0.32	..	..	1	0.11	5	0.11
20. Pyorrhoea ..	5	3.31	2	0.48	1	0.10	8	0.86	5	0.48	4	0.45	25	0.56
21. Nephritis ..	1	0.66	1	0.24	1	0.10	5	0.54	3	0.29	2	0.22	13	0.29
22. Diabetes ..	5	3.31	3	0.71	3	0.29	..	..	..	..	1	0.11	12	0.27
23. Syphilis ..	..	..	2	0.48	..	..	1	0.11	..	..	1	0.11	4	0.09
24. Other respiratory diseases ..	6	3.97	4	0.95	2	0.19	3	0.32	3	0.29	..	..	18	0.40
25. Filariasis ..	..	..	..	..	..	..	2	0.22	..	..	..	..	2	0.04
26. Endocarditis ..	..	..	..	..	..	..	4	0.43	..	..	..	..	4	0.09
27. Hernia ..	..	..	..	..	..	..	3	0.32	..	..	..	..	3	0.07
28. Piles ..	..	..	..	..	..	..	2	0.22	..	..	..	..	2	0.04
29. Peritonitis ..	..	..	..	..	..	..	2	0.22	..	..	..	..	2	0.04
30. Calculi of kidney ..	..	..	..	..	..	..	3	0.32	4	0.38	2	0.22	9	0.20
31. Skin diseases ..	..	..	..	..	..	..	..	..	7	0.67	9	1.01	16	0.36
32. Other V.D. ..	..	..	..	..	..	..	..	..	3	0.29	..	..	3	0.07
Total ..	140	92.72	378	89.79	1,023	98.18	904	97.41	1,007	96.98	780	87.44	4,232	94.44
All other causes ..	11	7.28	43	10.21	19	1.82	24	2.59	40	3.82	112	12.56	249	5.56
Grand total ..	151	100.00	421	100.00	1,042	100.00	928	100.00	1,047	100.00	892	100.00	4,481	100.00

TABLE 14
Invalidings among NCs(E) from Middle East.

Diseases	1940		1941		1942		1943		1944		1945		Total all Years	
	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate
Gunshot wounds ..	..	..	..	2.63	2	3.57	4	1.42	4	1.18	6	6.38	16	1.85
Shell wounds ..	..	..	..	..	..	..	..	..	6	1.77	1	4.06	8	0.92
Bomb wounds ..	..	..	..	..	..	..	..	..	1	0.29	4	4.26	7	0.81
Other wounds ..	..	..	..	..	1	1.79	10	3.55	8	2.36	2	2.13	21	2.43
Fractures ..	2	3.64	2	5.26	6	10.71	12	4.25	18	5.31	5	5.32	45	5.21
Injuries in action ..	..	..	1	2.63	..	..	1	0.35	4	1.18	2	2.13	8	0.92
1. Total ..	2	3.64	4	10.53	9	16.07	29	10.28	41	12.09	20	21.28	105	12.15
Schizophrenia ..	2	3.64	1	2.63	3	5.36	21	7.45	19	5.60	3	3.19	49	5.67
Manic depressive psychosis ..	..	..	..	..	4	7.14	7	2.48	10	2.95	..	..	21	2.43
Melancholia ..	1	1.82	..	..	1	1.79	..	..	..	..	..	..	2	0.23
Anxiety state ..	..	..	..	..	2	3.57	4	1.42	6	1.77	..	..	12	1.39
Hysteria ..	4	7.27	..	..	2	3.57	15	5.32	8	2.36	2	2.13	31	3.59
Mental deficiency ..	..	..	1	2.63	..	..	1	0.35	..	..	..	..	2	0.23
Other mental diseases ..	..	..	..	..	1	1.79	9	3.19	18	5.31	3	3.19	31	3.59
2. Total ..	7	12.73	2	5.26	13	23.21	57	20.21	61	18.00	8	8.51	148	17.13
3. Pulmonary TB ..	8	14.54	4	10.53	7	12.50	22	7.80	51	15.04	14	14.89	106	12.27
4. Diseases of the bones, joints and muscles ..	4	7.27	3	7.89	4	7.14	29	10.29	28	8.26	10	10.64	78	9.03
5. Bronchitis ..	..	..	2	5.26	1	1.79	16	5.67	33	9.73	3	3.19	55	6.36
6. Pleurisy ..	..	..	..	..	..	..	1	0.35	2	0.59	1	1.06	4	0.46
7. Leprosy ..	..	..	4	10.53	2	3.57	20	7.09	18	5.31	2	2.13	46	5.32
8. Diseases of the eyes ..	5	9.09	4	10.53	7	12.50	22	7.80	6	1.77	8	8.51	52	6.02
9. Digestive diseases ..	1	1.82	2	5.26	..	..	4	1.42	5	1.47	..	..	12	1.39
10. Diseases of the ear, nose and throat ..	1	1.82	..	..	1	1.79	3	1.06	11	3.24	3	3.19	19	2.20
11. Other circulatory diseases ..	3	5.45	..	..	..	..	3	1.06	9	2.65	3	3.19	18	2.09

TABLE 14—(Contd.)

Diseases	1940		1941		1942		1943		1944		1945		Total all Years	
	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate
12. Asthma ..	3	5.45	1	2.63	2	3.57	19	6.74	15	4.42	3	3.19	43	4.98
13. Nervous diseases ..	8	14.54	2	5.26	2	3.57	8	2.84	16	4.72	1	1.06	37	4.28
14. TB others ..	..	..	1	2.63	3	5.36	4	1.42	6	1.77	2	2.13	16	1.85
15. Diseases of the blood and blood forming organs ..	..	..	..	..	..	..	1	0.35	3	0.88	1	1.06	5	0.58
16. Other infective diseases ..	..	..	..	..	2	3.57	2	0.71	2	0.59	..	..	6	0.69
17. Inanition ..	..	..	..	..	..	..	18	6.38	2	0.59	..	..	20	2.31
18. Malaria ..	..	..	..	..	..	..	1	0.35	..	..	..	..	1	0.12
19. Pyorrhoea ..	3	5.45	1	2.63	..	..	4	1.42	1	0.29	1	1.06	10	1.16
20. Nephritis ..	1	1.82	..	..	..	..	..	..	..	..	1	1.06	2	0.23
21. Diabetes ..	1	1.82	..	..	..	..	..	..	..	..	..	..	1	0.12
22. Syphilis ..	2	3.64	1	2.63	2	3.57	3	1.06	..	..	1	1.06	5	0.58
23. Other respiratory diseases ..	..	..	..	..	..	..	..	..	2	0.59	1	1.06	8	0.92
24. Endocarditis ..	..	..	..	..	..	..	1	0.35	..	..	..	..	1	0.12
25. Hernia ..	..	..	..	..	..	..	2	0.71	..	..	..	..	2	0.23
26. Calculi of kidney ..	..	..	..	..	..	..	..	..	..	..	1	1.06	1	0.12
27. Skin diseases ..	..	..	..	..	..	..	..	..	7	2.06	1	1.06	8	0.92
Total ..	50	90.91	31	81.58	55	98.21	269	95.39	319	94.10	85	90.43	809	93.64
All other causes ..	5	9.09	7	18.42	1	1.79	13	4.61	20	5.90	9	9.57	55	6.36
Grand total ..	55	100.00	38	100.00	56	100.00	282	100.00	339	100.00	94	100.00	864	100.00

Section VII

CENTRAL MEDITERRANEAN FRONT

Soon after the end of the Tunisian campaign in North Africa, 7th and 8th British Armies landed in Sicily on July 10, 1943. Fighting on this island did not last very long. By 17 August all enemy resistance had ended there which led to a large scale Allied preparation for an assault on the Italian mainland. On 3 September Allied forces had effected landings in the toe of Italy, between Reggio and Cantona. Mussolini had already resigned on 25 July. Marshal Badoglio, who succeeded as Prime Minister of Italy, surrendered unconditionally to the Allies on 8 September 1943. Thereafter Germans occupied Rome and other areas in North Italy and kept on fighting till 29 April 1945, when their armies also surrendered completely. The duration of fighting on this front, therefore, extends over about six months of 1943, whole of 1944 and 1945. Figures of invalidments from this front, given in Table 15 also pertain to this period.

VCOS AND IORS

Few Indian troops were participating in the earlier part of the Italian fighting. It is probably due to this reason that only five VCOs and IORs are shown in this table as having been invalided during 1943. There were 178 and 1,947 invalidments during 1944 and 1945 respectively. Invalidments in 1945 were about 21 times of those in 1944. They formed 91.4 per cent. of all invalidments declared during the period under consideration.

WAR WOUNDS AND INJURIES

Invalidments due to war wounds and injuries show the same trend over the period as has been shown by total invalidments. The relevant figures were 3 in 1943, 83 in 1944 and 1,285 in 1945. Such invalidments during 1945 formed 93.7 per cent. of total war wounds and injury invalidments, over the whole period. The percentage contribution to the total invalidments every year by this group of causes remained at a very high figure. It was 60 per cent. in 1943, 46.63 per cent. in 1944 and 66 per cent. in 1945.

As among the causes of invalidments in this group, the descending importance of invalidments due to fracture can be seen from this table. During 1943 they caused as many as 67 per cent. of total invalidments in this group; 24.1 per cent. of the total in 1944 and 18.1 per cent. of the total in 1945. In 1944 gunshot wounds incapacitated about 50 per cent. of the total in this group and 36.4 per cent. in 1945. In addition to gunshot wounds and fracture invalidments, shell wounds also caused as many as 12 per cent. of total invalidments in this group during 1944 and 31.5 per cent. during 1945. It was only during 1945 that bomb wounds meant 7.5 per cent. of total invalidments in this group (Table 15).

MENTAL DISEASES

Invalidments due to mental diseases show an increase from year to year similar to that indicated by total invalidments. Such invalidments during 1945 form 83.8 per cent. of all mental invalidments over the whole period. It will, however, be seen that mental invalidments were 1/3 of invalidments due to war wounds and injuries during 1943; less than 1/2 during 1944 and less than 1/6 during 1945. Their relative rates also were comparatively lower. On the whole they contributed 11.88 per cent. of all invalidments during the period.

During 1943 there was only one invalidment due to mental diseases and that was caused by manic depressive psychosis. Manic depressive psychosis caused 17.5 per cent. of all mental invalidments in 1944 and 7.1 per cent. in 1945. Schizophrenia was responsible for 52.5 per cent. of all mental invalidments in 1944 but 30.19 per cent. during 1945. Hysteria which caused only 12.5 per cent. of total mental invalidments in 1944 was responsible for 39.15 per cent. in 1945.

Among the diseases other than the two groups considered above, it was only the eye diseases, which caused during 1943 one invalidment on this front. During 1944, however, pleurisy caused as many as 23 invalidments with a relative rate of 12.92 per cent. of all causes that contributed invalidments in this year, TB pulmonary, diseases of bones, joints and muscles, skin diseases, bronchitis and eye diseases contributed at a rate higher than 1 per cent. to the total. During 1945 on the other hand, there was no single cause responsible for as much as 5 per cent. or more of the total invalidments. In this year pleurisy caused only 2.11 per cent. of all invalidments as against a rate of 12.92 per cent. in 1944. The highest rate at which any of these diseases contributed to the total were the ENT diseases with a relative rate of 3.95 per cent. Some of the other important causes of invalidment during this year were the diseases of bones, joints and muscles, TB pulmonary, eye diseases and bronchitis (Table 15).

NCs(E)

Table 16 shows that there were no invalidments among the NCs(E) during 1943. 18 of them were invalided during 1944 and 157 during 1945. The fact that invalidments among the NCs(E) should be lower than the corresponding invalidments among the VCOs and IORs is borne out by the figure in this table also. They formed 1/10th of VCOs and IORs invalidments during 1944 and less than 1/12th during 1945.

WAR WOUNDS AND INJURIES

There were two invalidments due to this group of causes as against 83 among the VCOs and IORs during 1944 and 65 invalidments as against 1,285 during 1945. The two invalidments in 1944 were caused one each by gunshot wounds and shell wounds. In 1945, 35.4 per cent. of 65 invalidments, due to this group of causes, were caused by gunshot wounds, 30.8 per cent. by fractures and 26.1 per cent. by shell wounds.

MENTAL DISEASES

Total invalidments due to mental diseases were higher than those due to war wounds and injuries in 1944 but lower in 1945. Figures of mental invalidments among the NCs(E) are lower than those for the VCOs and IORs, each year, but if these figures are weighted against total invalidments among VCOs and IORs, the resulting figures would show higher NCs(E) invalidments. This means that proportionately there are generally more mental invalidments among the NCs(E) than those among the VCOs and IORs.

As between the individual causes of this group, schizophrenia was responsible for 70 per cent. of all mental invalidments during 1944. Manic depressive psychosis caused the rest of 30 per cent. of mental invalidments. During 1945 schizophrenia again caused the largest number of invalidments among this group of causes, with a relative rate of 51·5 per cent. Anxiety state and hysteria were the other two important causes of invalidments during this year with relative rates of 15·1 per cent. and 12·1 per cent. of total mental invalidments.

Among the causes other than the two groups that have been considered above, pulmonary TB, diseases of bones, joints and muscles, bronchitis and pleurisy were the other four specific diseases that contributed any invalidments during 1944. Diseases of bones, joints and muscles and pleurisy each, caused more than 5 per cent. of total invalidments in 1945. The other important diseases which caused more than 1 per cent. of total invalidments in this year were other circulatory diseases, asthma, bronchitis, eye diseases, leprosy and ENT diseases. The drop in the relative importance of pulmonary TB from 11·11 per cent. to 0·64 per cent. in the two years is noticeable. There were two invalidments due to pulmonary TB in 1944 and only one in 1945, from the same cause.

TABLE 15

Invalidings among VCOs and IORs from Central Mediterranean Force.

Diseases	1943		1944		1945		Total all Years	
	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate	Actual	Relative Invalid-ing Rate
Gunshot wounds	..	..	42	23·59	468	24·04	510	23·94
Shell wounds ..	..	..	10	5·62	405	20·80	415	19·48
Bomb wounds	..	..	..	..	97	4·98	97	4·55
Other wounds	1	20·00	5	2·81	46	2·36	52	2·44
Fractures ..	2	40·00	20	11·24	233	11·97	255	11·97
Injuries in ac-tion ..	..	..	6	3·37	36	1·85	42	1·97
1. Total ..	3	60·00	83	46·63	1,285	66·00	1,371	64·37

TABLE 15—(Contd.)

Diseases	1943		1944		1945		Total all Years	
	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate
Schizophrenia	21	11·80	64	3·29	85	3·99
Manic depressive psychosis ..	1	20·00	7	3·93	15	0·77	23	1·08
Melancholia
Anxiety state	25	1·28	25	1·17
Hysteria	5	2·81	83	4·26	88	4·13
Mental deficiency	8	0·41	8	0·38
Other mental diseases	7	3·93	17	0·87	24	1·13
2. Total ..	1	20·00	40	22·47	212	10·89	253	11·88
3. Pulmonary TB	7	3·93	59	3·03	66	3·10
4. Diseases of bones, joints and muscles	6	3·37	73	3·75	79	3·71
5. Bronchitis	3	1·68	21	1·08	24	1·13
6. Pleurisy	23	12·92	41	2·11	64	3·00
7. Leprosy	10	0·51	10	0·47
8. Diseases of the eyes ..	1	20·00	2	1·12	55	2·82	58	2·72
9. Other digestive diseases	1	0·56	6	0·31	7	0·33
10. Diseases of ear, nose and throat	77	3·95	77	3·61
11. Other circulatory diseases	1	0·56	8	0·41	9	0·42
12. Asthma	12	0·62	12	0·56
13. Nervous diseases	1	0·56	14	0·72	15	0·70
14. TB others	16	0·82	16	0·75
15. Diseases of the blood and blood forming organs	6	0·31	6	0·28
16. Other infective diseases	1	0·05	1	0·05
17. Diabetes	1	0·56	1	0·05	2	0·09
18. Calculi of kidney	2	0·10	8	0·38
19. Skin diseases	6	3·37	9	0·46	9	0·42
Total ..	5	100·00	174	97·75	1,908	98·00	2,087	97·98
All other causes	4	2·25	39	2·00	43	2·02
Grand total ..	5	100·00	178	100·00	1,947	100·00	2,130	100·00

TABLE 16

Invalidings among NCs(E) from Central Mediterranean Force.

Diseases	1943		1944		1945		Total all Years	
	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate	Actual	Relative Invalid- ing Rate
Gunshot wounds	1	5.55	23	14.65	24	13.71
Shell wounds	1	5.55	17	10.83	18	10.29
Bomb wounds	1	0.64	1	0.57
Other wounds	3	1.91	3	1.71
Fractures	20	12.74	20	11.43
Injuries in action	1	0.64	1	0.57
1. Total	2	11.11	65	41.40	67	38.29
Schizophrenia	7	38.89	17	10.83	24	13.71
Manic depressive psychosis	3	16.67	1	0.64	4	2.29
Anxiety state	5	3.18	5	2.86
Hysteria	4	2.55	4	2.29
Mental deficiency	1	0.64	1	0.57
Other mental diseases	5	3.18	5	2.86
2. Total	10	55.55	33	21.02	43	24.57
3. Pulmonary TB	2	11.11	1	0.64	3	1.71
4. Diseases of bones, joints and muscles	2	11.11	11	7.01	13	7.43
5. Bronchitis	1	5.55	4	2.55	5	2.86
6. Pleurisy	1	5.55	9	5.73	10	5.71
7. Leprosy	3	1.91	3	1.71
8. Diseases of the eyes	4	2.55	4	2.29
9. Diseases of the ear, nose and throat	3	1.91	3	1.71
10. Other circulatory diseases	5	3.18	5	2.86
11. Asthma	5	3.18	5	2.86
12. Diseases of the blood and blood forming organs	1	0.64	1	0.57
13. Other respiratory diseases	1	0.64	1	0.57
Total	18	100.00	145	92.36	163	93.14
All other causes	12	7.64	12	6.86
Grand total	18	100.00	157	100.00	175	100.00

APPENDIX

Raw Materials of Army Medical Statistics

The accuracy and utility of statistics primarily depends on carefully planned proformae. It is on the basis of information contained in these statistical returns that the scientific appraisal of any information required can be made. If they are badly planned they will furnish information of no practical value. The proper compilation and rendition of these raw material and scientific consolidation, analysis and interpretation of the information contained in them are obviously, important features of a statistical service. The important features of the proformae used during World War II by the medical services, responsibility for their rendition, consolidation etc., of each form may, therefore, be briefly discussed.

The following proformae were used by the Medical Services in the Indian Armed Forces:—

A.F.A. 27—	Morning State of Sick.
A.F.A. 31—	Monthly Return of Sick in Hospital and Barracks.
A.F.A. 31-A—	Field Service monthly return of the sick amongst overseas troops based on India.
A.F.A. 31-B—	Field Service Monthly return of sick amongst troops in Operational Area in India.
A.F.A. 32—	Annual Return of sick and wounded.
A.F.A. 36—	Field Service Hospital Nominal Roll of Admission and Discharges. Discontinued in 1943.
A.F.A. 45—	Proceeding of a Medical Board.
A.F.B. 158—	Nominal Roll of British Service Officer and Warrant Officers.
A.F.B. 179—	Medical Report on a soldier.
A.F.B. 181—	Clinical Chart.
A.F.B. 182—	Return of Sick on Board Ship.
A.F.B. 183—	Detailed information on a case of Mental Disability British troops.
A.F.I. 1225—	Annual Report of Work carried out in Laboratories.
A.F.I. 1247—	Venereal Case Cards.
A.F.I. 3056—	Special Report on a case of fever of the Enteric/Typhoid Group.
A.F.I. 5034—	Summary of dental treatment carried out in Army dental centre.
A.F.W. 3118—	Field Medical Card.
A.F.W. 3118-A—	Field Medical Envelope.
A.B. 27—	Admission and Discharge Book.
A.B. 46—	Recruit Register for British troops only. Discontinued in March 1944.
A.B. 172—	Medical Certificate form. Discontinued in 1943.

- I.A.F.K. 1151— Monthly Return of Recruit Discharged from Units on Medical Grounds. Discontinued in December 1943.
- I.A.F.K. 1154— Roll of Recruiting Parties by District.
- I.A.F.K. 1154-A— Rough Roll Recruiting.
- I.A.F.K. 1154-B— Rough Rolls, showing main diseases for which recruits were rejected by the Senior Recruiting Medical Officers or others and Trachoma Statistics (Discontinued in 1939 for the duration of War).
- I.A.F.K. 1169-A— Abstract from recruits monthly progress return. (I.A.F.K. 1169) and statement of medical rejection.

Some of the above forms had to be discontinued in view of shortage of papers and others were modified in the light of the experience gained and the requirements. Details of important forms are given below:—

- I.A.F. (Med) 1— Index Card for officers of the R.A.M.C., I.M.S. A.D. Corps.
- I.A.F. (Med) 1-A— Continuation of Index Card.
- I.A.F. (Med) 9 — Strength of Indian Hospital Corps by the Head-quarter Indian Hospital Corps Depot amended in 1941.
- I.A.F. (Med) 11— QAIMNS. Discontinued in December 1943.
- I.A.F. (Med) 16— Discharge Slips.
- I.A.F. (Med) 18— Notification of Casualty.
- I.A.F. (Med) 19— Discharge Certificate of Assistant Surgeons, Sub-Asstt. Surgeons of Indian Medical Department.
- I.A.F. (Med) 22— Record of Detained patients. This form was amended in January 1944.
- I.A.F. M. 1190-B— Bi-monthly return of all administrative and executive officers of the Indian Medical Service. This was suspended on 23 October 1943 and cancelled on 16 April 1946.
- I.A.F.M. 1191-B— Bi-monthly Return of Military Sub-Assistant Surgeons Indian Medical Department. Discontinued in October 1943.
- I.A.F.M. 1191-G— Monthly Return of Lady Nurses and Matrons of Military Family Hospitals modified in 1943.
- I.A.F.M. 1194— Report of Medical inspection of new units and drafts arriving in India. Discontinued in 1943.
- I.A.F.M. 1204— Diet Sheets British and Indian Troops and followers modified in 1944.
- I.A.F.M. 1213— Weekly Return of Admissions etc., by Field Ambulance, Staging Sections, Casualty Clearing Station and Hospitals. Discontinued in 1943.
- I.A.F.M. 1214— Weekly Return of Admissions etc., by Staging Section Casualty Clearing Station and Hospitals. Discontinued in June 1943.

- I.A.F.M. 1215— Daily and Weekly bed state by Field Ambulance, Staging Section, Convalescent Depots and Hospitals.
- I.A.F.M. 1235— Return of sick of troops in Camp, on manoeuvres or transit from station to another. Discontinued in December 1943.
- I.A.F.M. 1242— Medical History Sheets of Indian Troops and followers.
- I.A.F.M. 1242-A— Medical History Sheet of King George's Royal Indian Military School.
- I.A.F.M. 1265— Medical Board for the Reassessment of Disability.
- I.A.F.M. 1282— Monthly Diet Sheet of a Ward.
- I.A.F.M. 1286— Monthly Pathology Report.

A.F.A. 27

MORNING STATE OF SICK

In this form the officer commanding of a hospital was required to submit daily to officer commanding the Station and Assistant Director Medical Services unit by unit, number of patients remained in the hospital, admitted, discharged, died and remaining in the end. Nominal rolls of sick officers, with rank and unit such as were admitted and discharged on every morning was also required to be given.

In the case of death, a special report was to be made at once to the officer commanding unit and officer commanding the Station. A copy of such report was also to be sent by the officer commanding direct to the Chaplain-in-Charge of the cemetery, the christian name of the deceased being given in every case. In the case of children the officer commanding was required to send the full name and rank of the father. A similar report was also to be made in the case of the denomination other than the Church of England to the Minister of that denomination.

Particulars of the deceased which were required to be sent to the chaplain were: army number, rank, name, unit, age, religion, disease, time and place of death period after which internment may take place.

A.F.A. 31

MONTHLY RETURN OF SICK IN HOSPITAL AND BARRACKS

This was the most comprehensive single basic statistical form in use by the medical services of the Army in India. It was a peace-time monthly return of sick in hospitals and barracks and was rendered by each hospital separately.

Separate returns were required for British and Indian troops, (i) sick troops in each regiment or corps, the larger units, (ii) personnel of the Royal Navy, Royal Marine, Royal Indian Navy, Indian Territorial Force, Auxiliary Force India, Royal Air Force and Reservists undergoing training; (iii) overseas cases and (iv) students of military

schools and colleges. Transfers to or from other hospitals were not shown anywhere in this form, but the days spent in hospital by transfers to hospitals included in the average daily sick; and the station of admission was shown in the case of transfers 'not yet diagnosed' cases, on change of diagnosis. These steps precluded (i) error in the double counting of any case, (ii) underestimating the duration of sickness, and ensured ultimate disposal on correct diagnosis of a 'not yet diagnosed' case without prejudice to the number of admissions and duration of illness accounted for in their totals.

It consisted originally of the following seven tables:—

Table I. Sick of British and Indian troops were accounted for on separate returns. Among the British troops, number of those treated in barracks and of those admitted to hospitals were shown separately for British other ranks, officers with King's commission (British Service), Military Nursing Service, British Service officers' wives and their children and British other ranks wives and their children. These admissions were also shown against each of the 104 diseases given therein. Similar figures for Indian troops (Indian officers and Indian other ranks, Indian service officers with King's commission, Indian service officers' wives and their children and followers) were also furnished. Among those of the Indian officers, Indian other ranks and British other ranks who were treated in barracks further breakdown into number of those (i) placed on sick list, (ii) admitted to hospital from barrack treatment, which included only those cases which were placed on sick list in barracks and subsequently admitted to hospital, and (iii) transferred from hospital to barrack treatment were also given. No such details were required in respect of any other category of troops. "Total admissions to hospital" was required to include direct admissions as such, as well as those admitted from barracks and also cases first received from camps, manoeuvres and line of march. In the latter case, a note was required to be made of the admissions so received. Transfers from other hospitals (to avoid double counting) and from board ship were not to be shown as fresh admissions.

The list of diseases (104) was fairly detailed as may be seen from the fact that dysentery was broken up into its four types, i.e. bacillary, bacillary exudate, protozoal and clinical, hepatitis into amoebic and other than amoebic, typhoid fever into para, A, B and C, malaria into each of fresh and relapses case Benign-tertian, Malignant-tertian, Quarta Mixed Clinical and Cachezia etc.

Labour cases were not shown as admissions to hospital on this return.

Table II was planned to elicit information Regiment/Corps-wise about average strength, for each month. All the categories of troops and their families which have been mentioned in table I were covered. Since in a Regiment/Corps by far the largest number of troops in any category would be in that of 'other ranks' who would also contribute a large share to total sickness, this table was also prescribed to show Regiment/Corps-wise number of admissions to hospital and number treated in barracks and the figure of average daily sick.

Ratios per 1,000 strength and average daily sick for all the admissions in a hospital was also required to be shown.

Table III was designed to show for 'officers with King's commission' and 'other ranks' maximum and minimum number respectively in hospital on any one day of the month. These figures were to include detained cases

also. Followers, Indian Territorial Force and reservists undergoing training would be included with Indian other ranks for the purpose of this table.

Table IV was meant exclusively for admissions and deaths among Anglo-Indian soldiers, disease-wise for about thirtynine individual diseases. Their average monthly strength and average daily sick were also separately shown.

Table V was a nominal role of deaths among officers (including Indians with King's commission), other ranks, British women and children and wives and children of Indian officers with King's commission regiment or corps-wise. Among the particulars of the dying were such items also as age, total service and cause of death.

Table VI showed the change of diagnosis in 'not yet diagnosed' cases, during the month, without in any inflating the number of admissions consequent on such change. This table was meant to rectify any hurry that may have entered in the first diagnosis or a genuine difficulty that may have arisen.

Table VII partly repeated what has already been included in Tables I and II. Actual admissions during a month for other ranks only, according to their units for nine of the more important causes were required to be entered in it.

The last table of this return, Table VIII, was meant for giving details of the method of diagnosis employed during the month, of fresh syphilis cases. It was a sort of a nominal syphilis register.

Some alterations were made in this return in February 1940.¹ For Indian Officers with Viceroy's Commission the term Viceroy's Commissioned Officers (VCOs) came to be applied. Table IV (admissions and deaths of Anglo-Indians) was² abolished, reducing the total number of tables of this return from eight to seven. Instead of Table IV, the following procedure was required to be adopted for recording the medical statistics of Anglo-Indians:—

- (i) "all who enlisted in British units or (were) employed in the work of British personnel (would) be recorded amongst British troops.
- (ii) all who (were) in units of the Indian Army or (were) employed in the work of Indian personnel (would) be recorded as Indian troops."

Certain amendments were again carried out in this return during July-October 1943. A further reduction in one table was affected by dropping the syphilis roll. Instead of 'followers' among Indian troops, non-combatants (enrolled) was substituted. The list of diseases in Table I was increased to 129 by adding new ones, as was necessitated by the exigencies of the situation.

Towards the end of 1944 another edition³ of this form was printed on representations made by Armies/Commands for simplification. This time the original VI tables were further reduced to three. Every hospital

¹ D.M.S. (I) Memo. No. Z-19480/2 (DMS 5) dated 10th February 1940.

² D.M.S. (I) Memo. No. Z-19656/3/DMS 5, dated 11th July 1940.

³ U.O.No. 6859/DMS 5(d) dated 20th March 1944 to D.M.R. & F. Simla.

was required, as usual, to send one copy direct to the Director Medical Services (India), one copy to the Deputy Director Medical Services, and one to the Assistant Director Medical Services. Strengths were not required to be completed by military hospitals/medical units. Instead these were to be completed by the Director Medical Services, the Deputy Director Medical Services and the Assistant Director Medical Services respectively who were asked to obtain them from the General Headquarters/Army/Command/Statistical Sections. This was an important decision and involved a departure from previous practice. It will be seen that this ensured a fair degree of correctness in the strength figures which hospitals/medical units were most liable to enter wrongly.

The first table was meant to give summary of the figures to follow in the two subsequent tables. For each of the category of troops mentioned earlier, strength, total admission from all causes, average constantly sick, deaths, total admissions to sick in quarters or to barrack treatment, average number constantly under treatment in quarters or barracks and ratios per 1,000 were required to be shown separately. Table II was meant to elicit total admissions to hospitals for each category of troops under 131 diseases and causes. The last Table (III) was a sort of a nominal roll, Regiment/Corps-wise, of all deaths among military personnel and their families occurring during a month. The details required were, as before, age, total service and cause of death (in accordance with the Nomenclature of Diseases), etc.

It may be added that this form was again revised in 1947 and 1949 after the war. The table pertaining to the ultimate diagnosis of 'not yet diagnosed' cases had reappeared in 1947 with information about invalidings. The categories of troops were also amended in keeping with the after-freedom set up of the Indian Army, Navy and Air Force. In the 1949 edition on the other hand, the number invalided, among various categories of troops, by diseases was newly added as a separate table.

This form has always been the most comprehensive statistical return on the basis of which, as will be seen later on, A.F.A. 32, the annual return, was planned. It formed in this way the basis on which the annual reports on the health of Army in India were based. It was again this form which was modified to suit the requirements of the hospitals/medical units on various fronts during the war.

A.F.A. 31-A

FIELD SERVICE MONTHLY RETURN OF SICK (MODIFIED FOR INDIA) AMONGST
OVERSEAS TROOPS BASED ON INDIA (NOT FOR PEACE HOSPITALS)

The overseas forces in the beginning were rendering information on peace-hospital monthly form A.F.A. 31 which was considered wasteful involving unnecessary clerical labour. On 17 April 1941 the Medical Directorate, therefore, suggested to introduce A.F.A. 31-A.

There was some difficulty over allotting the No. A.F.A. 31-A to this form because this number did not fall in the War Office (London)

“classified list”, which was overcome by obtaining *ex-post-facto* permission⁴ of the War Office (London). It was pointed out in obtaining this permission that A.F.A. 31 is so well known to all members of the Military Medical Services as the Monthly Return of Sick (Peace). The addition of letter ‘A’ will soon be known to signify that this is the same return as rendered by hospitals in the field. Precedents quoted at the time were A.D. Book—AB27A (War); A.F.I. 1220-A and A.F.B. 179-A. Finally the use of this form was sanctioned. The object of this return was to lessen the statistical work of field forces without lessening in value the compilation work conducted by the Medical Directorate.

This form was revised in the beginning of 1943. This time it was desired to be distributed to various units and formations abroad by the Manager, Forms Press, Calcutta.

The use of this form was abolished in 1944.

A.F.A. 31-A was so devised that it contained all vital information expected of A.F.A. 31. Instead of the seven tables of the latter, A.F.A. 31-A had only two tables. Table I included information on (i) average monthly strength, (ii) total admissions, (iii) total evacuations, (iv) total deaths and (v) average daily sick. Whereas Table II was meant to elicit information about actual admissions due to certain diseases for various categories of troops among the British and Indian elements of the forces. Instead of the 106 diseases headings on which admissions in A.F.A. 31 were sought, less than forty were included in A.F.A. 31-A. For instance it was considered unnecessary clerical labour in the field, for the purposes of this form, to ask for admission figures due to malaria under its 12 sub-headings, as was the case, in A.F.A. 31. In A.F.A. 31-A all that was required was total admissions due to malaria (all forms). Similarly sub-classifications of dysentery, hepatitis, typhoid, venereal diseases, leishmaniasis, nervous and mental diseases of A.F.A. 31 were also dropped in devising A.F.A. 31-A. Some other individual diseases e.g. anthrax, measles, blackwater fever, headache etc., were also dropped. Table II of A.F.A. 31 required the maximum and minimum number of patients in a hospital, on any one day of the month under report. This information, having found its inclusion in the average number daily sick (of A.F.A. 31-A) was considered of not much use, besides imposing unnecessary work in the field. So also, the information regarding the final diagnosis of cases admitted as not yet diagnosed cases originally (Table V of A.F.A. 31) was dropped too. Table VI was a repetition of what had already been covered in Table I of A.F.A. 31 and Table VII contained a nominal roll of the method of diagnosis of fresh syphilis cases. This too was considered as unnecessarily detailed for the purposes of a form which was required to give a comparative picture of diseases prevalent from month to month on various fronts.

A.F.A. 31-A was required to be submitted monthly to the D.M.S. in India from the Adjutant General's Office at the base. The connotation of the major and minor septic diseases and average daily sick remained unchanged, from what it was in A.F.A. 31, for the purposes of this form.

⁴ War Office, London, S.W. 1 No. 24/Gen/2537 (AMD 10) of 10 September 1943 to the C-in-C, G.H. Q. (I).

In matters of details, between the two editions of A.F.A. 31-A (those of 1941 and 1942) certain revision were made in November 1942. The procedure of its monthly despatch was now more clearly laid down. In the 1941 edition of this form the manner of routing the information finally to the D.M.S. in India was not shown. Probably at that stage consolidation was done in India. In the November 1942 edition it was clearly laid down that the form after completion was to be sent not later than fifth day of each month by the Officer Commanding hospital, Casualty Clearing Station, or Field Ambulance concerned to the DMS/DDMS of the Force, with copies to the ADMS concerned. A consolidated return for the whole force was then required to be sent by the DMS/DDMS of the Force to the DMS in India, "not later than the 10th day of each month". It was again the DMS/DDMS of the force who was required to give to the DMS in India the average monthly strength of the force. Hospitals or other medical units were not to show these figures when submitting their returns to the DMS/DDMS of the Force. This definitely introduced a possible measure of correctness in strength figures as shown on the consolidated returns. Similarly it was stipulated clearly in the 1942 edition of the form that the evacuation figures would be supplied by the DMS/DDMS of the force to the DMS in India. In the first edition it was not so clearly laid down. It was again in the revised edition of 1942 that admissions to hospitals were clearly defined as being fresh admissions only. Transfer cases were not permitted to be included in admission figures. In the first edition of A.F.A. 31-A, average daily sick in hospitals and ambulances was the requirement, whereas in the 1942 revised edition average daily sick under treatment in hospitals, Casualty Clearing Stations, Staging Sections and Field Ambulances was included. In both the editions daily detailed cases were not required to be included to arrive at the average number daily sick. This number was further broken up into those due to (i) sickness and (ii) war wounds in the 1942 edition only.

The 38 diseases that formed part of the first edition of this form against which admissions to hospitals were required to be entered, were increased to 47 in the revised edition, in November 1942. Pharyngitis which existed in 1941 edition was abolished in 1942. At the same time jaundice was changed into hepatitis and venereal disease was broken up into fresh and relapse cases separately. The new diseases added were beri beri, circulatory diseases, diseases of ear and nose, not yet diagnosed fever, pediculosis, respiratory diseases, scurvy, skin diseases (excluding diseases due to metazoan parasites) and major septic diseases. Figures regarding strength, evacuation, deaths, average daily sick and admissions were required to be given in respect of different categories of personnel separately. The addition of these diseases was perhaps needed by the exigencies of the sickness situation on various fronts.

It was decided⁵ in November 1944 to abolish A.F.A. 31-A.

In the preceding chapters, which are concerned with morbidity on fronts abroad during the war use has wholly been made of the

⁵ No. A.F.A. 31-B/P.F. & S. dated 23-11-1944 from Director Military Regulations and Forms to Manager Forms Press, Calcutta (under reference 6826/DMS5(c) dated 18-11-1944) and 6825/DMS5(c), dated 18-11-1944.

compilations, etc., done on the basis of A.F.A. 31-A till November-December 1944. After that medical units/formations were asked to submit their returns on a similar form A.F.A. 31-B.

As to the rendition aspect of these returns it can be said without any exaggeration that the regularity and reliability (which is difficult to test in statistical terms) can be said to have been fairly high.

A.F.A. 31-B

FIELD SERVICE MONTHLY RETURN OF SICK AMONGST TROOPS IN OPERATIONAL AREAS IN INDIA

At the request of the then the DMS Eleventh Army Group, the DMS in India introduced A.F.A. 31-B (monthly return of sick for operational areas in India) on 10 November, 1942.⁶ As in the case of the A.F.A. 31-A, referred to earlier in this chapter, there was difficulty in allotting a number in the "A.F." series to this form. It did not appear in the "classified list and Alphabetical Index of Army Forms and Books—1940". A joint permission for the introduction of both these forms was obtained, *ex-post-facto*, from the war office (London).

Hospitals and formations affected were required to submit their individual returns to the DDMS. Medical units/formations in India Command were not required to use this form for submitting their statistics.

A revision in the form was contemplated in March 1944.⁷ The revised edition was introduced to various medical units and formations under the Eleventh Army Group, S.E.A.⁸

In November 1944,⁹ it was decided that all medical units/formations based on India should submit A.F.A. 31-B in lieu of A.F.A. 31-A. These included the medical units/formations in India Command also.

It will be seen on a comparison of the A.F.A. 31-A (revised edition of 1942) and the 1942 edition of A.F.A. 31-B that both these forms were exactly the same.

Some changes became necessary in A.F.A. 31-B as a result of the administrative set up of Allied Land Forces South East Asia and the coming in into this command of troops other than elements of the British and Indian armies. Under the new instructions, the DDMS Army after having consolidated individual returns from various medical units, was required to send them in duplicate, to the DMS Eleventh Army Group. One regular copy to the DMS (India) of this consolidated return continued to be sent.

Mention has already been made of the categories of troops, of the British and Indian Armies, for whom statistical information was required to be furnished on A.F.A. 31-A and A.F.A. 31-B (1942 edition). The

⁶ U.O. No. 6826/DMS5(c) dated 10-11-1942 from Medical Directorate to Directorate, Military Remount and Forms.

⁷ U.O. No. 6826/DMS5(c) dated 18-3-1944 to DMR & F.

⁸ I.A.O. No. 1912/44 dated 10-10-1944.

⁹ D.M.S. case No. 6825/DMS5(c).

following categories were further added in 1944 for whom similar information was sought to be provided:—

<i>Force</i>	<i>New category added to AFA. 31-B in 1944</i>
(1) British Army	A.T.S.
(2) Allied and Dominion Forces:—	
(a) East African Forces	.. (i) Officers (ii) B.O.Rs. (iii) E.A.O.Rs.
(b) West African Forces	.. (i) Officers (ii) B.O.Rs. (iii) W.A.O.Rs.
(c) Ceylonese Forces	.. (i) Officers (BS) (ii) Officers (CS) (iii) Ceylonese O.Rs.
(d) United States Forces	.. U.S. Forces.
(e) Chinese Forces ..	.. Chinese Forces.
(f) R.A.F., I.A.F., R.A.A.F., R.N. & A.F.	(i) Officers (ii) W.A.A.F. (iii) Other Ranks.
(g) R.N., R.M. and R.I.N.	.. (i) Officers (ii) W.R.N.S. (iii) Other Ranks.

Instead of the categories formerly shown under the Indian Army as B.Os. (IS) and I.K.C.Os. and I.C.Os., "Officers (IS)" was substituted in the revised form. This led definitely to administrative convenience because a large majority of persons in this category were British and the few Indian Officers that were there could be expected to be generally of parallel health habits to those of the British.

Side by side with the new categories of troops some new disease-headings were also introduced. Instead of the original forty-seven diseases the number was now increased to sixty-three. The change seems to have been warranted by the special terrain of Burma, to which certain diseases peculiar, to the country, and the nature of fighting that occurred. New diseases added were—jaundice, black water fever, nutritional anaemia, other anaemias, other diseases due to disorders of nutrition, pneumonia, burns and scalds, injuries caused by blast, chemical warfare injuries, and self inflicted injuries (including suicides). Diseases that existed in the former edition but were broken up into two or more sub-classes are given below:—

Dysentery into dysentery amoebic and non-amoebic; hepatitis into hepatitis amoebic and infective; mental diseases into psychosis, psycho-neurosis and N.Y.D. mental and V.D. fresh and relapse into syphilis, gonorrhoea, soft chancre and all other venereal diseases.

After A.F.A. 31-A had been abolished in November 1944, A.F.A. 31-B became the most important single monthly return of medical statistics for soldiers in the field areas, whether in India or abroad. What follows on morbidity of Indian Army in the succeeding chapters has mostly been based on these two forms.

A.F.A. 32

ANNUAL RETURN OF SICK AND WOUNDED

A.F.A. 32, has been in use by the medical authorities of the Indian Army from before the thirties of the present century. Before World War II, some modifications were carried out in this form during 1934. It is on the statistics contained in this form that the Annual Reports on the Health of the Army in India were written.

It originally consisted of eight tables. It was based on the monthly figures provided by A.F.A. 31 or A.F.A. 31-A. Officers Commanding Hospitals were required to forward one copy of the form direct to the DMS(I) and the other to the ADMS for transmission to the DDMS of the Command. This ensured consolidation at the Headquarters with a cross check of the figures through the DDMS.

In Table I, figures regarding admissions, deaths, in and out of a hospital, invalidings and average number constantly sick for Indian Officers, Non-Commissioned Officers, Men and Followers against individual diseases was required to be given. The list of diseases was same as that contained in the Nomenclature of Diseases (1931 edition). It may incidentally be mentioned that the totals of admissions, deaths, invalids, average constantly sick etc., for all causes for Indian Officers, Non-Commissioned Officers, men and followers, with their rates per 1,000 of respective strength, were required to be given also on the first page of this return. These totals were to correspond with those of Table I. Some other useful data were also provided on this page e.g. average sick time to each soldier (in hospital and barracks) and duration of each case of sickness. The former was determined by multiplying the average number constantly sick by the number of days in the year and dividing by the relevant strength, and the latter by multiplying the average constantly sick by the number of days in the year and dividing by the number of admissions. These two statistics were highly important in evaluating average non-effectiveness of individuals from morbidity in a year and the non-effectiveness caused by each sickness. The latter is required in assessing the relative importance of diseases causing manpower wastage; because it is essential in this connection not only to know the number of admissions due to a disease but also the actual time spent in hospital.

Men who died out of hospitals or cases of transfer from other hospitals or from on boardship, were not included amongst the admissions for the purposes of Table I. In Table II, total admissions, discharges from hospital, deaths and invalidings during the year, for personnel (including officers' wives, children or men) not belonging to regular troops and, therefore, not included in Table I but were under treatment in the

hospital were given. The personnel included here were of Royal Navy, Royal Marine, Royal Indian Marine, Indian Territorial Force, Auxiliary Force India, Royal Air Force and reservists. Table III contained a nominal roll of those who died during the year from personnel included in Table II. Table IV provided the nominal roll with particulars of age etc., of invalided patients who died in the hospital after invalidment but before they could leave it. This table was completely eliminated in the later editions of this form precluding the possibility of finding out correlation between age, disease and death. Information about admissions, deaths, in and out of hospital, average number constantly sick, for officers with King's Commission, separately for British and Indian Officers, against individual diseases of Table I, were given in Table V. The totals of these figures, for all diseases, as treated in hospital and those treated in quarters, with rates per 1,000, were also separately shown. Table VI contained data as of Table V in respect of Indian Military Nursing Service irrespective of the fact whether they were treated in family hospitals, in their own quarters, or in civil hospitals. Returns of the type in Table VI in respect of wives of officers with King's Commission, Indian Army, (see Table V), were required to be given in Table VII. Labour cases were desired to be shown also but without including them in the totals of this table. Separate but similar returns for children of officers with King's Commission, Indian Army, formed part of the last table of this form. In the end, this comprehensive statistical return showed also the number of beds equipped in each hospital.

In the 1941 edition of A.F.A. 32 certain broad changes were brought about. Tables III and IV as such were omitted. In their places returns for wives and children respectively of British Other Ranks regarding their admissions, deaths etc., were introduced. In Table VI, Indian Military Nursing Services was replaced by Military Nursing Services, British and Indian.

This form as stated above was required to be submitted by each hospital annually. Check and consolidation in the initial stage was ensured at the ADMS/DDMS level leaving the final operations with the DMS(I). It can, therefore, be seen that this form ensured full reporting.

In 1939, the year of the break out of World War II, instead of one annual return, medical units/formations were required¹⁰ to submit information pertaining to that year in two parts, first covering the period from 1 January to 31 August and the other from 1 September to 31 December. This division was meant to separate the period of hostilities starting in September 1939 from the peace period.

This form was revised¹¹ on 20 July 1940 to make "it applicable to both¹² British and Indian troops". The submission of A.F.I. 1220 (Hospital record card) for British troops was cancelled from 30 June, 1940 and it was laid down that A.F.A. 32 for British troops should be completed for the whole of the year 1940 and despatched by hospitals

¹⁰ DMS Circular letter No. Z-18873/3/DMS5 dated 21-2-1940 to DDsMS and ADsMS

¹¹ DMS(I) Circular letter No. Z-20757/1/DMS5, dated 21-6-1940 to DDsMS and ADsMS.

¹² Memo. No. A.F.A.32/8756/CRS dated 20-7-1940 from DMR & F to Manager of Forms Press, Calcutta.

not later than 10 January, 1941, the date prescribed by the Regulations for the Medical Services of the Army in India.

The introduction of A.F.A. 32 for British troops did not, however, discontinue the submission of a brief medical case sheet for every British case, for pension purposes.

It was again emphasised in this connection, that officers commanding, British Military Hospitals and British wings would continue to scrutinize closely the diagnosis in every case to ensure correctness as provided for in the Nomenclature of Diseases or in accordance with instructions contained in the Regulations for Medical Services of the Army in India, as the case may be.

On 7 September, 1941 the DMS directed¹³ all the DDsMS of Commands and the ADsMS of Districts in India to observe the following principles in the matter of diagnosis and procedure:—

- (a) Diseases should be returned strictly in accordance with the nomenclature of diseases (1931), "acute" and "chronic" cases being specified wherever possible.
- (b) Meningitis should be returned as "Cerebral meningitis", spinal meningitis", or "cerebrospinal meningitis" as the case may be.
- (c) In cases of hydrocele and haematocele the qualification "of the spermatic cord" or "of the tunica vaginalis" will always be added.
- (d) All cases of hepatitis should be classified as "amoebic" or "non-amoebic".
- (e) Diseases of the generative and Urinary systems e.g. pyelitis, urethritis, etc., are often confused and compilation becomes difficult. All cases of urithritis should be shown as venereal or non-venereal.
- (f) Tumours and Cysts are seldom defined properly. They should not be merely classified under main heads, such as "Tumours of bone", "Tumours of muscles", "Tumours of Nerves", etc. Each *variety* is to be clearly stated; "Sebaculous Cyst" should be returned as "Glandular Cyst".
- (g) In the case of G.S. wound the motive or cause should always be mentioned, e.g. self inflicted, homicidal, in action, accidental or old.
- (h) Fractures should invariably be classified to show whether they are simple, compound, impacted or comminuted.
- (i) Figures are often given by "*Groups*" instead of individual diseases. This necessitates an enquiry from the hospitals to ascertain the figures actually required regarding figures for individual diseases.
- (j) Suicides, if any, should be dealt with separately, at the end of each table affected.
- (k) The "average constantly sick" figures for N.Y.D. cases should be notified as and when the final diagnoses are notified. The final diagnoses of cases returned as "Not Yet Diagnosed" were also required to be submitted as early as possible.

¹³ DMS(I) Circular letter No. Z-20430/2(DMS5).

This form was revised in¹⁴ 1941 to suit the new annual compilation tables and the requirements of the Remington Accounting Machine sanctioned for the compilation of medical statistics of the Army.

Towards the end of 1942, A.F.A. 32 was again revised and two forms were made, one for the use by medical units/formations in the Eastern Army and the other for use by those in India. The forms for the use by medical units/formations in the Eastern Army only was modified annual edition of A.F.A. 31-A (revised) and A.F.A. 31-B. It was required to be rendered initially by Officer Commanding medical unit to the DMS in India with copies to the DDsMS Army, Corps and the ADsMS. Like A.F.A. 31-A, it also consisted of two tables. First table was designed for annual information by various categories of troops about (1) total admissions due to all causes, sickness and war wounds; (2) total deaths divided into those due to sickness and those due to war wounds and (3) average number constantly sick due to sickness and war wounds separately. In the second table admissions (not transfer cases) to hospitals, Casualty Clearing Stations, Staging Sections and Field Ambulances, by various categories of troops of the British and Indian Armies were required to be given for 71 diseases, instead of the 47 of A.F.A. 31-A. The increase was in respect of (1) diseases of the aerolar tissue, (2) duodonal ulcer, (3) jaundice, (4) pneumonia, (5) dysentery which was broken up into its four sub-headings in place of one single entry of the A.F.A. 31-A, (6) enteric group of fevers which was divided into five sub-headings, (7) hepatitis into two, (8) malaria into eight and (9) Venereal diseases from two (fresh and relapse only) into seven sub-divisions. This comprehensive spread of information, it may be seen, could not be wholly consolidated for a particular year on the basis of either A.F.A. 31-A or A.F.A. 31-B which were monthly returns containing fewer details.

In¹⁵ order to lessen clerical work in military hospitals it was decided to introduce a separate proforma of this return for use, during the war only, by all military hospitals, Field Ambulances, Staging Sections and Casualty Clearing Stations in India as distinct from those in the Eastern Army at that time. In this modification records of "families" were not required to be maintained. Instead such information was asked to be kept in the A. and D. Books regularly. Among the various categories of troops covered, Military Nursing Services and Women's Auxiliary Corps (India) were also included in the modified edition of 1942.

Two copies of this form were required to be submitted by the Officer Commanding of medical units concerned not later than 10 January, each year, one direct to the DMS in India and the other to DDMS through ADMS. Consolidation was thus continued to be ensured at the Headquarters. First page of the modified form was designed to give a summary of the annual sickness history, e.g. (1) average annual strength, based on twelve monthly strength figures; (2) total admissions; (3) total deaths; (4) total invalids and (5) number of average constantly

¹⁴ I.A.O. No. 1311/1941.

¹⁵ Medical Directorate (I) Circular Memo. No. Z-6853/1/DMS5(d) dated 17 December 1942 to DDsMS and ADsMS in India Command.

sick for various categories of troops. Average constantly sick was determined by adding the number of days each case was non-effective, including days of admissions and discharge and dividing the number by 365 (366 in leap years). It included patients remaining non-effective from the previous year but detained patients were not included. The components of Air Force, Navy, Colonial and Dominion troops were excluded from the purview of this form, indicating thereby that its main constituent was the Army only. Reservists, Indian Territorial Force and Auxiliary Force personnel of the Army also were to be included only when "embodied". This return also included all admissions to hospitals from amongst British troops who did not belong to the normal Indian garrison. Three tables were attached thereto eliciting information against a number of diseases individually about admissions, deaths, invalids and average constantly sick. The first of these tables relates to "other ranks" and "non-combatants", the second to British Officers (British and Indian Services) and Indian King's Commissioned and Indian Commissioned Officers and the third to British Service nurses, Indian Service nurses and Women Auxiliary Corps (India). As a cross-check, it can readily be seen that entries recorded on page 1, would tally with the grand totals of detail by diseases shown in Tables I, II and III.

On 31 December 1943 the Medical Directorate laid down¹⁶, among other things, that separate returns would be rendered for British and Indian troops. Officers commanding military hospitals/field medical units were required to ensure completeness of the return in all respects before despatch, in order to avoid needless correspondence. A list of important diseases by groups was also prepared by the Medical Directorate (I) and was despatched along with the proforma. In order to facilitate the work of compilations of tables at the Headquarters for the Annual Report on the Health of the Army in India, the Medical Directorate (I) directed the Officers Commanding units, to enter the diseases strictly in the order provided for in the attached list with the proforma.

A.F.A. 36

FIELD SERVICE, HOSPITAL NOMINAL ROLL OF ADMISSIONS AND DISCHARGES

This return was a mobilisation issue not to be used in peace time. It was a nominal roll of all patients admitted to or discharged from a hospital during a week, and included civilians and prisoners of war. A table was required to be added at the foot of the form showing by ranks the total number of patients in each unit, rationed on Saturday in the week for which the return was being rendered.

Reports of deaths of officers and men in each hospital, as they occurred, were to be sent to Adjutant General's office at the Base as well as their Commanding Officer. All deaths of officers were required to be reported also by telegram to the Adjutant General at General Headquarters.

It was rendered by the Officer Commanding of the medical unit each week to the Adjutant General's Office at the Base.

¹⁶ Memorandum No. 6858/1/DMS5(d).

The particulars to be filled in were; serial number, corps, regimental number, rank, name, date of admission, nature of disease or wound, date of death/discharge/transfer, discharges—the manner and transfers to what place and how. All names were entered by arms of the service groups, e.g. Infantry, Supply and Transport, Signals etc. The individual unit was shown in every case.

During 1942,¹⁷ Medical Directorate (India) issued instructions that all static hospitals to which cases were transferred from operational areas in India to submit A.F.A. 36 to General Headquarters (India) 2nd Echelon. This procedure became necessary to inform 2nd Echelon of the final destination of all patients evacuated from operational areas. It was also decided, at the Adjutant General's instance in 1943, that this form would be rendered also by field ambulances and casualty clearing stations *daily*, instead of weekly to General Headquarters 2nd Echelon.

In 1943,¹⁸ it was observed that two separate forms were used for daily return of hospital admissions and discharges, viz., A.F.W. 3034 by hospitals and A.F.A. 36 by Field Ambulances, Casualty Clearing Stations and staging sections. War Office at that time had decided to abolish A.F.A. 36 and had adopted A.F.W. 3034 as the one standard form for the purpose. It was, therefore, decided¹⁹ to abolish the use of A.F.A. 36 in India also and to use A.F.W. 3034 in lieu.

A.F.A. 45

PROCEEDINGS OF A MEDICAL BOARD

This form was originally used for officers and nurses claiming wound, injury or disability pensions or gratuities and was signed by the President and Members of a medical board.

The person's rank, name, unit, age, total service and service abroad with details of dates at which various countries visited were given. These were followed by points comprising a statement of the case by the Medical Board who were advised to "carefully discriminate between the officer's statement and evidence recorded in his medical documents". The board was required to attach photos, medical certificates or radiographs with their report and distinguish between injuries more than one by numerals. The following questions were included in the statement of the case:—

Actual date of commencement of absence from duty;

Disability;

Date of origin of disability;

Place of origin of disability;

Give concisely the essential facts of the history of the disability.

Boards subsequent to the first were to record here the progress of the case since the last medical examination.

Describe in detail the officer's present condition.

Amputation cases—Has an artificial limb, temporary or permanent, been satisfactorily fitted.

¹⁷ DMS(I) Memo. No. 6823/2/DMS5(g) dated 30 November 1942 to all DDsMS.

¹⁸ U.O. No. 15521/DMS 10 (d) from DMS(I) to DPF & S.

¹⁹ Memo. No. AFA 36/PF & S dated 10 May 1944.

These were followed by a questionnaire or the "Opinion of Medical Board", about the degree of disability etc.

In the case of the personnel of the Indian Army (including those officers of the British Army who had qualified for an Indian Pension) the Board was required to state exactly their opinion on the question of "attributability", "aggravation" or non-connection of disabilities with service showing on what facts they have based their opinion or their reasons for arriving at a conclusion.

Then followed questions whether a particular disability was caused or aggravated by officers own negligence of misconduct; to what degree an officer was disabled at the time of appearing before the Board; how long would that degree persist; what treatment was the officer receiving; what further treatment would be required and how long; did he need a constant attendant; was he fit for general duty or would he be fit for it if so after what period; if unfit for general duty was he fit for service at home and how long was he likely to continue in such condition etc.

It was communicated²⁰ by the Medical Directorate in 1944 to the Forms Directorate that it had been agreed that the proceedings of medical boards in respect of officers invalidated from military service should in future be recorded on this return (A.F.A. 45) instead of IAFM-1243 as was being done up to that time. The printing of IAFM-1243 was, therefore, suspended.²¹

An administrative instruction was later issued discontinuing completely the use of IAFM-1243 and the old "AFA 45—Modified for India" and a new form was issued. In this form there were some alterations. Further particulars, of category in which an officer was placed due to his being declared unfit for general service etc., and the category in which he would be after six months, were added.

The British Army Medical categories were reproduced on the form with instructions for necessary adjustment to parallel Indian categories.

Towards the end of 1945, another edition (July 1945 edition) of this form was, asked to be brought in use again.

A.F.B. 158

NOMINAL ROLL OF BRITISH SERVICE OFFICERS AND WARRANT OFFICERS

This form was submitted by each unit and formation for which a war establishment existed. This was a monthly return. It was prepared in quintuplicate. Original copy was sent to War Office for personnel branch concerned, one copy to Command Headquarter, one copy to Area and/or Divisional Headquarter, one copy to Army Agents, one copy for retention by units or formations. Those officers who were posted to units or formations, but actually did not join the unit or formation were also included in this form.

²⁰ U.O. No. 19895/8/DMS10(B) dated 24-4-1944 to DPI & S.

²¹ Memo. A.F.A. 45/669/PF & S dated 9 May 1944 to Manager Forms Press, Calcutta. Indian Army Order 983/1944.

War Office introduced A.F.B. 158 (war) for use in India. This form was considered essential by the Medical Directorate and hence Indian Form A.F.B. 158 was accordingly modified and was given the number as A.F.B. 158 (war) in 1942. Instructions for the compilation and submission of A.F.B. 158 (war) were issued *vide* I.A.O. 1912/42.

In 1945 A.F.W. 3008 was introduced²², and consequently A.F.B. (war) was discontinued.

A.F.B. 179 (Modified for India)

MEDICAL REPORT ON A SOLDIER

This report was mainly drawn for assessing the disability suffered by a soldier either during his service in the Army or outside. In addition to the five parts in which this report was divided, information as to the home address of a soldier, date of his arrival in India and his material status were appended in the beginning of the report. Part I contained additional general information about a soldier's name, unit, rank, age, date of enlistment, former trade or occupation, particulars of previous service in any of the three services, previous record of a Court of Inquiry, if held, on an injury and previous opinion of a commanding officer about his health.

Part II was devoted to a statement by the soldier concerning his own case. This part was rendered as a declaration by a soldier in the presence of a witness and was signed by him and the witness. If he was unable to sign, he was required to affix his mark. The soldier was required to give details of his service in various countries; of the cause and time of any disease; wound or injury from which he might be suffering; of names of hospitals where he was treated for the ailment specified above; of the fact whether he was suffering from it before joining the service and the names of hospital in which admitted or doctors who treated him; of the National Health approved Society in England of which, he was a member; of his last employer before joining the service and his occupation and trade there.

Part III was a statement of case as recorded by officer in medical charge of case and countersigned by officer commanding hospital. In stating this case the medical officer incharge of the case was asked to confine himself exclusively to the medical aspect of the case and to discriminate carefully between the man's unsupported statements and evidence recorded in the service and medical documents. He was also to distinguish carefully and state clearly about cases that were due to venereal disease. Medical opinion was asked to be treated as entirely separate from the statements made by the soldier. The medical officer incharge of the case was to state disability in respect of which it was proposed to bring a case before a Board; to give date and place of origin of such disability; its history and his opinion as to the causation—whether it originated during military service, assigning reasons in each case; whether any military conditions brought to light a latent disease or hastened the progress of disability; to state if the disability was due to

²² I.A.O. 943/1945.

serious negligence or misconduct on the part of the soldier; to give the state of the disability at the time of reporting, supported by such things as specialists' reports, reports on laboratory tests etc.; to report, if the disability was due to injury, how it was caused and to report whether an advised operation or treatment was declined by the patient. In the end, the medical officer was required to give his recommendation as to (a) a change to England, (b) discharge as physically unfit for military service under prevailing standards and (c) discharge as physically unfit for any form of military service.

The particulars of the type mentioned above were furnished for the use of the Deputy/Assistant Director of Medical Services in adding his recommendations as to whether or not a case should be brought before a medical board. If he approved such an action being taken, then the President and Members of a medical board were required to enter on this form their views on:—

- the condition of disability claimed or discovered, giving symptoms physical signs and the effect of disability on function;
- the causation of disability—due or not due to military service, whether military conditions brought to light any latent conditions etc.;
- whether the cause or aggravation of the disability was due to intemperance, negligence or misconduct, venereal disease or any other cause within soldier's own control;
- agreement of the board with the soldier's own statements;
- whether the disability was in a final and stationary condition; if not, the minimum duration of the existing degree of disablement (in months);
- degree of disablement as compared with a normal healthy man of the same age;
- whether there existed any disability on entry and its degree.

Then, the Board was to record its views regarding the patient declining any course of treatment etc., and his change to England etc. as was done by the medical officer. If the case needed attendants their type and number and whether the board considered a soldier fit for employment in civil life, if he was discharged.

This whole report was then to be approved and signed by DDMS/ADMS under regulations for the Medical Services of the Army in India.

The contents of this form as they existed at the commencement of World War II have been described above.

Another part (Part VI) was added to this form in 1941 in which, if a discharge was approved, the appropriate paragraph of King's Regulations was inserted by the Officer Commanding a hospital. It was in this amended form that this report was being used throughout the remaining period of World War II.

A.F.B. 181 (Clinical Chart)

This chart was attached to the case sheet (A.F.I. 1237) of every patient. It was filled in by officer-in-charge of a case and was a record of his day to day temperatures, while sick; pulse rate; respiration rate

per minute and motions. The other particulars that were filled in at the hospital were: number, rank, name, unit, age, service, disease, date of admission, date of discharge and the result.

It will be realised that clinical notes and treatment are most important considerations from the point of view of a detained ward through which practically all cases have to pass.

After the abolition of A.F.I. 1220 short notes on all hospital cases for future reference, were being kept on A.F.I. 1237 (Medical Case Sheet) which was primarily intended for dangerously or seriously ill cases. In 1940, it was desired²³ that such notes on ordinary cases, which did not require the completion of A.F.I. 1237 should be recorded on the reverse of A.F.B. 181. With a view to meeting this requirement, instructions on laboratory methods for the diagnosis of fevers were added on to this return. These entries pertained to the laboratory examinations carried out each day after illness and their results. The medical officer could append his own clinical notes and results of laboratory examination. This procedure obviated the necessity of filling a separate form for registering short notes on a patients' illness history.

A.F.B. 182

RETURN OF SICK ON BOARD SHIP

This form was submitted only to the Director of Medical Services in India by the embarkation authorities, in cases of movements from port to port, controlled by Army Headquarters (India). It was prepared in duplicate by the M.O. Incharge on the ship and handed to the Embarkation Medical Officer at the port of disembarkation at the end of the voyage. Separate returns were furnished for (1) troops proceeding on service abroad, (2) troops returning to India from abroad, (3) troops travelling between stations abroad, (4) invalids returning to India; sick and wounded from a field force were to be shown on a separate return from other invalids. Returns for (1) British troops, (2) Indian troops and (3) followers, were required separately.

Care was asked to be exercised to show on this return, and also in the Medical History Sheet, all cases of sickness occurring during the voyage among the effective and time-expired men, whether admitted to hospital for treatment or only attending. All invalids were required to be shown whether embarked as patients in hospital or not.

The details, in Table I, required to be entered against each of the 57 diseases, mentioned in the form were; invalids, cases on voyage and those transferred to other hospitals, for each category of troops, their women and children separately.

Table II was meant to give the number of beds equipped, strength on board and beds occupied *each day* by officers. Similarly, strength, number of general, infectious, tuberculosis and mental beds occupied *each day* by Warrant Officers, non-commissioned officers and men and those by their wives and children.

²³ DMS(I) U.O. No. Z-21064/DMS3, dated 17-8-1940 to DMR & F.

Table III was return of patients not included in Table I treated during the voyage (e.g. R.I.N., R.N., R.M. and R.A.F. etc.).

Table IV was a nominal roll of deaths, with particulars, on board during the voyage. If it was an invalid the command from which he was invalided was required to be mentioned.

Then there was space for general remarks (on sanitation, accommodation, prevalence of a disease etc.) by the medical officer.

The form was revised during 1943 with the following main amendments:—

Table I. All diseases shown under "other diseases" classified under systems were omitted and a space was left for the Medical Officer to insert any diseases which might occur on the voyage.

Table II. Was revised to conform with a similar table in the War Office form. Information on the following heads was now required to be given:—

Duration of Voyage in days;

Average daily strength on board and general beds occupied each day by officers;

Average daily strength on board and average number of general, infections, tuberculosis and mental beds occupied each day by Warrant Officers, non-commissioned officers and men, their women and children was also required.

Table III Indian Air Force was included.

Table IV. No change was made.

A.F.B. 183

DETAILED INFORMATION IN A CASE OF MENTAL DISABILITY (BRITISH TROOPS)

The heading of this return indicates that its use was confined to mental cases among the British troops, (U.O. Note No. 7156/DMS5(c) issued by the DMS(I) on 15-6-1943 to DMR&F.) It was, however, used till June 1943 for reporting mental cases among Indian troops also. After this date its submission for Indian troops was stopped, and a simpler revised edition of this return, was asked to be used for British troops.

In the earlier edition this was a comprehensive return in which the medical officer incharge of a case was required to submit to the specialist in mental diseases detailed particulars about each case. After giving his general particulars, the medical officer was to show the periods spent by a patient in England, India, China, Egypt etc. The medical officer was also required to give detailed remarks, on character and personal habits of the patient, family history, personal history from childhood onwards, physical condition, the symptoms by which the attack being reported by him manifested itself, any unusual stress due to military service, patient's emotional state, the state of his memory and speech making faculty, hallucinations, illusions, delusions if any, defective habits or propensities, state of his sleep, any suicidal attempt, whether the patient is noisy, destructive etc., accepts food or is he malingering? Was there any mental defect or feeble-mindedness?

Was the case suitable as a mental case, etc.? The Medical Officer was required to add any further relevant information on the case. The specialist then suggested the diagnosis and added his own remarks and recommendations before transmitting the case onwards.

In the revised edition of this return which came into use after 1943 as A.F.B. 183 (revised) the heading was changed to 'Report on a case referred for psychiatric examination'. It was divided into two parts, Part I was required to be filled in by the Commanding Officer and the Medical Officer respectively. The Officer Commanding was required to give the following particulars: nature of present duties of the patients, efficiency and response to training, mental outlook and personal habits, behaviour and influence in the unit/company, and the Officer Commanding's opinion as regards retention or disposal. The Medical Officer on the other hand, was to give symptoms, results of physical examination, behaviour and mental state, purpose of psychiatric examination and any other relevant information about the patient.

After completing of this part, this form was sent in a closed cover, with the patient to the psychiatrist. This return was enclosed with A.F.B. 178-A (medical history sheet) and A.F.B. 122 (field conduct sheet).

In Part II, the psychiatrist was asked to give his diagnosis of the case and recommendations.

A.F.I. 1225

ANNUAL REPORT OF WORK CARRIED OUT IN LABORATORIES

The Officer-in-Charge of a laboratory was required to complete this report at the end of each year and submit them as indicated below. Three copies were prepared by District laboratories—one for Director of Medical Services in India; one for Deputy Director of Medical Services Command and the third as office copy. Brigade laboratories on the other hand were required to prepare four copies—one for the Director of Medical Services in India, one for the Deputy Director of Medical Services Command, one for District laboratory and one as office copy.

This form was under revision in the beginning of World War II, in September 1939. In its revised form at that time it was a comprehensive document comprising fairly detailed report of the work of a laboratory, in a year.

It contained the following broad headings of informations:—

Total number of specimens examined in the year:

Blood examinations: total, sterile with p.c. contaminated with p.c. and positive.

Blood cultures

Analysis of organism isolated: total positive, negative. Total number of cases diagnosed as enteric group of fevers. Analyses of enteric group bacilli. Other members of the salmonella group viz. *B. faecalis* alkaligenes; Coliform bacilli, viz.; Pyogenic Cocci, viz.; Malaria parasites; Other organisms. (Note:—Each of these was provided with information

on number of isolations, motile, non-motile and No. confirmed by Kasauli late). Number of chemical examinations of blood sugar, blood urea, Van den Bergh reaction, other examinations, blood typing and cross agglutination tests. Number of blood examinations on counts and films etc.

Serology.

Felix method of examining enteric group fevers.

T.O. Agglutination results (3 or more tests) for typhoid cases, enteric group cases, typhus cases, etc.,

A.O. Agglutination results by Felix's methods in typhoid cases, in enteric group cases, in typhus cases, and other diseases.

Vi agglutination results (Felix's methods) in typhoid cases, and in other diseases.

Total number of incomplete Widal tests in typhus group of fevers.

The amount of agglutinating sera received.

Agglutinating serum prepared in the laboratory.

Diagnostic tests for Kala-azar.

Complement fixation tests.

Kahn tests.

Examination of cerebrospinal fluid cases.

Microscopic and bacteriological examination of mouth, throat, nose and ear discharges and secretions.

Examination of Test meals and other examinations for gastric contents.

Examinations (excluding routine examinations of menials) of faeces, in detail, for dysentery and diarrhoea cases, enteric group of fevers.

Cholera, ova of helminths, intestinal helminths, protozoa (other than E. histolytica and E. Coli).

And other examinations.

Examinations performed on urine, chemical, microscopic and bacteriological.

Routine examinations of menials:

for

routine purposes,

epidemics,

faeces,

typhoid/dysentery etc.,

protozoa, and

ova.

Examination for bacteriological control of surgical asepsis.

Examination of Pathological fluids.

Examination of tissues.

Post mortem examinations (Clinical diagnosis, chief abnormalities, microscopic examinations, bacteriological examinations).

Animal inoculations (Nature of investigations, Guinea pig, mouse, rabbit).

Other examinations (water, aerated waters, milk, preparation of auto-genous vaccines,

Estimation of available chlorine in bleaching powder,

Rats for B. pestis,

Identification of snakes,

Identification of mosquitoes, others).

In the end there was a regular entry about the number and names of:—

- (i) medical officers trained in laboratory duties,
- (ii) assistant surgeons trained in laboratory duties,
- (iii) sub-assistant surgeons trained in laboratory duties,
- (iv) numbers trained in clinical side-rooms duties of assistant surgeons and sub-assistant surgeons.

Names of officers who were incharge of a particular laboratory, with periods, were also required to be given.

This form was amended almost every year at the time of reprint. In 1943-44 many changes consequent on better knowledge were made in the classifications employed in this form. It again contained 21 pages. The broad headings will, in brief, be indicated here.

- (a) Total number of specimens examined in a year. In each of the requirements given below the number of tests with percentage of positive etc., was required to be indicated.
- (b) *Bacteriology*:
 - (i) blood cultures.
 - (ii) faeces cultures, (dysentery and diarrhoea, enteric group of fevers, and cholera).
 - (iii) urine cultures (enteric group of fevers, coliform bacteria, other organisms).
 - (iv) Mouth, throat, nose and ear (Diphtheria, Vincents Organisms, N. Meningitidis and other organisms).
 - (v) Sputum (T.B. and other organisms).
 - (vi) Cerebrospinal fluid (N. Meningitidis and other organisms).
 - (vii) Exudates and Transudates.
 - (viii) Examination of other pathological material.
 (Scrapings for *M. leprae*, dark ground examinations for *T. Pallidum* urethral smears for *N. Gonorrhoea*, discharges and other examinations).
- (c) *Serology*:
 - Widel reaction (enteric group of fevers, brucella group and other diseases).
 - Well Felix's reaction (typhus group of fevers, etc.)
 - Dreyers' tests.
 - Absorption tests.
 - Quantity of agglutinating sera received.
 - Quantity of agglutinating sera prepared.
 - Diagnostic tests for Kala-azar.
 - Kahn tests.
 - Complement fixation tests.
- (d) Biochemistry (Blood, Urine, Gastric contents faeces, cerebrospinal fluid pathological fluids).
- (e) Haematology tests.

- (f) Protozoology tests (faeces, and blood).
- (g) Helminthology tests (adults worms, ova and larvae).
- (h) Histology (including sections of brain for Negri bodies) tests (tissue).
- (i) Post-mortem examination.
- (j) Animal inoculations.
- (k) Examinations in connection with hygiene (water, milk, etc., carriers' examinations in connection with epidemics of typhoid or dysentery etc., and ova found during routine examination of carriers).
- (l) Identification of insects and snakes, etc.

This edition was definitely more scientifically distributed under various headings. It had also dropped those columns which existed in the earlier edition about number of medical officers trained in laboratory duties etc., but had incorporated some entirely new ones also within its scope.

In the end, there was provision in the form, as of old, for comments of officers-in-charge on any points of interest on explanation in connection with their report. They were requested to indicate any matters of technique etc., which might have been of interest to other laboratories and their satisfaction with the equipment of working staff.

A.F.I.—1247—Venereal Case Card (Modified for India)

This form was introduced for the use of the Indian Army in September 1929 in place of I.A.F.M.-1263 (syphilis or soft chancre case card) and I.A.F.M.-1264 (Gonorrhoea case card) which were simultaneously cancelled. It was required to be introduced for British troops in India by the War Office (London). It was considered as a valuable method of control over the standard of treatment of venereal diseases in their districts by the dermatologists and was utilised by the latter for preparing their annual reports. It afforded a valuable record of important details regarding symptoms progress and treatment of cases to the medical officers taking over such cases for treatment.

It was divided in two main parts, one regarding gonorrhoea or V. sore cases and the other pertaining the syphilis cases. Under the former, a date-wise record of the patients condition, including record of clinical and pathological findings, and a record of treatment of complications giving details of arseno-benzol and mercurial treatment, was required to be given. A similar daily record in respect of specific treatment of syphilis cases, furnishing such details as method, type of treatment, urine, weight in pounds and reactions, was also prescribed.

In addition to the information described above, the following are some of the other particulars which were also required to be furnished, age of the recruit, his disease, nature of attack (1st, 2nd, 3rd or relapse), date of examination or admission, date of discharge (to duty or to attend), date of transference with destination, date of invaliding and date of final disposal. Among the particulars of infection and precautions taken were included; the place of contracting the infection; the fact whether the patient was on leave for more than 24 hours, was he able to return to

the barracks the same night, was he infected by a prostitute or an amateur; period stated to have elapsed between exposure and use of prophylaxis, and was he drunk at the time of infection etc.

The medical officer was required to give his remarks specially on date and place of exposures to infection for the last three times; history of the case and condition at admission.

For syphilis cases, this card was required to be made out in duplicate. If a patient was permanently transferred to another station in India or Burma, both these cards were marked, for distinction, with the letter "T" in red ink. The duplicate copy was retained by the despatching hospital for compiling the annual return, to be destroyed thereafter, and the original was sent along with the patients medical history sheet (A.F.B.-178) to the officer commanding the hospital in the new station. The latter caused a new duplicate card to be prepared and was responsible for arranging the continuation of the treatment. On the conclusion of each course of treatment all cards were to be submitted to the specialist in Dermatology of the District or adjoining District, as the case may be, for his perusal and remarks. A duplicate report about a patient's removal from the syphilis register, with date and cause, was required to be sent for record purposes to the DMS in India.

This card for soft chancre and gonorrhoea cases was made out in original only and followed each case on its transference from one hospital to another. On final discharge of a case from a hospital, subsequent inspections were followed up for a period of four months and entries made on this form. Finally, after compilation of the annual report, these cards were required to be despatched to DMS in India.

At the beginning of World War II, no alterations were affected in the use of this form but by April, 1940²⁴, Commands were being consulted for bringing about certain changes in the procedure of submission of this card. Under these amendments, it was decided that the duplicate copy of A.F.I.-1247 which was formerly made out for syphilis cases would not in future be prepared. If a case was of special interest, notes were required to be entered in the syphilis register and/or a medical case sheet for it was prepared.

In order to ensure continuity of treatment of venereal diseases, it was decided²⁵ in 1942 to introduce a venereal card (I.A.F.M.-1272) in place of A.F.I.-1247. It was meant to be used both for British and Indian troops.

A.F.I.-3056 (Modified for India)

SPECIAL REPORT ON A CASE OF FEVER OF THE ENTERIC/TYPHOID GROUP

This form was in use of the army in India from much before World War II and continued to be used throughout it, as it was. It was used for enteric and typhus fever cases separately. Clinical details, laboratory findings and blood culture findings were required to be given for each

²⁴ DMS(I) U.O. No. Z-6363/DMS5 dated 9-4-1940.

²⁵ DMS UO No. 6971/DMS5(e) dated 10-6-1942.

case. Under clinical details information was required from medical officers on such particulars as date of onset; reporting sick, admission to hospital and discharge; general character of attack and important symptoms, duration of pyrexia, number and dates of relapses, nature of complication, leucocyte counts, rashes, etc., and the result; epidemiology and inoculation history with dates, dosage and station of inoculation.

Under laboratory findings, results of widal and weil felix agglutination tests were tabulated. Similarly name of organism isolated with date and results of urine and stool examinations were recorded under the heading *blood culture*.

Results of examinations for infecting organism during convalescence to exclude the carrier condition were also put down and signed by the laboratory incharge, as countersigned by officer-in-charge of the enteric laboratory, with his remarks, if any, to be countersigned further by the DADP of the District concerned with his own remarks, if any. *It was the duty of the DADP District to forward the form 'through usual channels', to DMS in India.*

A. F. W. 3118—Field Medical Card

A. F. W. 3118-A—The Envelope

This Card served as an index of the sickness history of a patient, from a Field Ambulance through a Casualty Clearing Station, etc., to a hospital. It accompanied the patient from place to place. A second Field Medical card was permissible to use if one could not suffice.

This form at the commencement of World War II contained on it the following particulars:—

- (a) Rank, number, name and unit of the patient;
- (b) Information as to whether the patient was a battle casualty, accidentally wounded or sick.
- (c) Particulars of the field ambulance to which the patient got admission, with his date of admission. The diagnosis of the patient's trouble as found by the field ambulance, etc.
- (d) Diagnosis of the casualty clearing station if it was different from that of the field ambulance.
- (e) Base hospital diagnosis.

It also contained the progress, day by day, of malaria treatment, if it was a malaria case. Also whether A.T. Serum treatment, (1st or 2nd) was administered.

Field ambulance was also required to show on it whether any morphia was administered, with its date and time.

There was also a table indicating on each day of such treatment, with dose and time, the administration of prophylactic sulphanilamide.

A Casualty Clearing Station and a hospital were required to give their particulars and date of entry of a patient along with their notes about the illness.

The envelope (A.F.W. 3118 A) which contained the field medical card was used as a ship-label. It had on one side the number, name, rank and unit of a patient, whether it was a slight or a severe case, whether the case needed special attention during transit, and the date of admission on board, the ship's name and its special destination. On the reverse side was the diary of a patient's transference showing every field ambulance, Casualty Clearing Station and hospital through which the patient had passed. Every ambulance train or its equivalent convoy was required to be shown. There was room for notes calling attention to special needs of a patient in transference.

During 1943, suggestions for improving both the card and envelope were received by the Director of Medical Services (India) from various sources. As a result, additional entries included on the card on revision were;—

An entry for age, service and religion of the patient.

Time and date of wound or sickness.

Information about initiation of A.F.B. 1174 and I.A.F.M. 1231, which were reports on cases other than those due to injuries which ended fatally or were proposed for invaliding.

Date of examination and diagnosis by Regimental medical officer and his notes, with signature.

Under the spaces for Field Ambulance and Casualty Clearing Station notes respectively, space was also provided for the destination of transference of each patient from that unit with dates etc.

Under the Field Ambulance notes about progress of treatment for various cases, the Regimental Medical Officer was required to make appropriate entries for A.T. serum, anti-gas and morphia administration in the manner specified. There was also provision on this card, as on the old, for examining the progress of treatment given day by day with sulphanilamide and the treatment of malaria. The use of the new edition was regularised through the Indian Army Order No. 1474/44.

A.B. 27

ADMISSION AND DISCHARGE BOOK

These books contained very useful record about duration etc., of sickness of each individual whether admitted to a hospital or treated in barracks. Its preservation was particularly desired from the point of view of pension enquiries.

Separate books for hospital or barrack treatment were kept for different categories of troops, viz., officers of the regular army, members of the military nursing services, soldiers of the Regular Army, British women including Army School Mistresses and children, Auxiliary Force followers, etc., invalids retained after date of discharge from service, etc., cases

transferred from garrisons or forces overseas not on field service, etc., sick and wounded transferred from active service in the field, records of each campaign were to be kept distinct and all other patients.

Transfers were not to be treated as admission to hospitals but were to be treated distinctly and separately. Similarly labour cases and deaths out of hospitals were to be accounted for separately from admissions.

Patients discharged from hospital to attend for outdoor treatment were required to be treated as discharged from a hospital and entry in the results column showing him as an "attend" case made.

Specific instructions on diagnoses of some diseases were also embodied. The diagnoses were required to be made strictly in accordance with the Nomenclature of Diseases.

All cases treated in barracks or quarters were required to be given separately. The admission and discharge columns of the A and D Book were to be used for cases "placed on" and "taken off" the sick lists respectively. Patients "detained" in hospital or "attend" cases were to be shown in these books and periods shown. A patient discharged from hospital to "attend" was to be shown in barrack treatment A and D Book as a transfer received from hospital and was to be accounted for as a transfer in AFA 31.

Persons reporting for medical inspection, inoculations etc., and those marked 'D' were excluded from the A and D Book entries.

Patients under treatment in barracks requiring admission to a hospital, were to be accounted for in the Barrack A and D Book as "transferred to hospital" with date but as an ordinary admission for the purpose of hospital treatment A and D Book.

These precautions were taken to avoid double counting of a case or under counting of another as between barrack treatment or hospital treatment cases and their inter mutual transfers.

The main entries to be made for each case in the A and D Book were: Unit, Squadron/Battery/Company regimental number, rank, name, age last birthday, total service (separately service in India), disease, dates of admission to and discharge from hospital, result (discharged/transferred, died etc.), number and designation of ward in which treated, number of days under treatment including admission and discharge days, religion and observations on any particular points to be noted.

There was another edition of this book known as A.B. 27-A which was meant for corresponding field (war) area returns. The necessary alterations in the terminology in the instructions were substituted to suit a field area. There were further some detailed instructions on classifications of wounds and injuries in action.

Separate type of Books for Indian and British troops were used towards the end of World War II. This form was prepared in triplicate, two copies of which were sent to G.H.Q. 2nd Echelon, India Command.

A. B. 46

RECRUIT REGISTER

This form was used mainly for British recruits, particularly after August, 1931 when its use for Indian recruits was discontinued.²⁶ It was essentially a register for use in depots in United Kingdom where depots were comparatively few and recruits numerous.

Particulars of every British recruit, whether passed or rejected, were recorded on it. Its register was retained as a permanent record in every hospital in which recruits were passed. The following details about recruits were required to be entered on it:—

trade or occupation; state of education; result of medical inspection (fit or unfit); distinctive marks; if rejected, cause of rejection; age as declared and as apparent; height; weight and chest measurements; marks of vaccination and declared place of birth etc.

By 1944, it was realised that the number of British recruits enlisted in India was so small that it did not warrant the continuance of the use of this register any more. It was for this reason that its further reprints for use in India was stopped²⁷ in March, 1944.

A. B. 172

MEDICAL CERTIFICATE FORM

This form was used to convey, to the medical officer responsible for health returns of a unit, information when an individual belonging to it, was placed on or taken off the sick list by another medical officer. It was also rendered whenever patients were transferred to another hospital. When a man became ill while absent from his Corps, this form was required to be filled wholly by the treating medical officer.

The general particulars concerning a man were; No. of the case, Corps, Squadron or Company, regimental number, rank and name, disease.

The following additional information was also required: completed years of age, service, dates of admission to and discharge from the hospital; diseases (including operations) and whether he died or recovered.

When he was discharged, the requirements of this form were to know his state of health at the time, his destination, duration of his disease in days and observations respecting the causation of illness and its permanent effects etc.

I.A.F.K. 1151

MONTHLY RETURN OF RECRUITS DISCHARGED FROM UNITS ON MEDICAL GROUND

“Monthly Return of Recruits Discharged on Medical Ground” was given Number I.A.F.K. 1168. This form was introduced in

²⁶ AHQ Memo No. B/11913/3/(A.G. 6) dated August, 1939.

²⁷ Director Military Regulations and Forms Memo. No. AB-46/994/PF&S Dated 10/11 March, 1944.

March, 1926. But it was noticed on 2 April, 1926 that I.A.F.K. 1168 regarding (enrolment of military medical pupils) was already in existence, therefore, I.A.F.K. 1151 number was allotted to the form known as "Monthly Return of Recruits Discharged on Medical Grounds from Units" instead of I.A.F.K. 1168.

This form was only furnished by Training Battalions of Indian Infantry and Pioneers, Pack Artillery Training Centre and Royal Artillery Training Centres, and not by any other unit.

It was desired on 6 January, 1930 that information regarding the physical development of recruits during training should be recorded on I.A.F.K. 1151, i.e. the average monthly gain or loss in weight for each group of recruits. Each group should consist of the recruits, who commenced training approximately on the same time. It was also suggested that this form should be submitted through the ADMS of the District or a copy should be endorsed to him, so that adequate local medical control may be exercised. It was decided on 24 April, 1930 that this form should be rendered quarterly instead of monthly and copy should be forwarded to the ADMS of the District. The information on average gain or loss of weight of recruits during the quarter must be entered on this form, and it must be submitted by Cavalry Regiments, Infantry and Pioneer Training Battalions and the Artillery Training Centre.

To ensure uniformity of the information furnished, the following particulars regarding loss of weight of recruits were recorded on this form:—

Regimental number and name of recruit.

Date of enrolment.

Weight on enrolment.

Weight on date of submission.

The average gain in weight of all recruits of a unit was also recorded.

In May, 1937 this form was submitted by Infantry Training Battalions, MATC, RATC, Cavalry Regiments, Signal Training Centre and Battalion Infantry Training Coy. The object of this return was to enable Army Headquarters to watch the number of discharges during each quarter and see that these are not unduly large. Recruiting officers were also vitally interested in these returns as all recruits for the army were produced through their agency. A copy of this return was sent to Regimental Officers concerned and in cases where the Regimental Officer considered that the reasons given for discharge were unsatisfactory, he represented the matter to Army Headquarters for consideration. The following amendments were made on 4 May, 1937:—

"In column 10, the cause of discharge will be described in full. The expression 'Unlikely to become an efficient soldier' is not sufficient". The following amendments were carried out in this form on 24-12-1940:—
 "In the 2nd line substitute 'various' for 'all' before the word 'causes'. Delete note 3, renumber note 4 as note 3. Delete the table on the reverse of the form".

This form was suspended for the duration of the war on 7-12-1943 for the reason of economy in paper. This is not in use now.

I.A.F.K. 1154

ROUGH ROLL (RECRUITING)

Information was required on this form from recruiting stations regarding each recruit's name and address, etc., recruiter's name etc., date of entertainment, date of approval or rejection, age, chest and height measurements and remarks about the recruit. It was amended in 1937. The additional information required thenceforward was about unit in each case, cause of rejection by Recruiting Officer or Medical Officer, various payments made to recruiter and recruits, clothing issued to recruit and particulars of railway warrants issued to rejected recruits. The form was again amended in 1944 to include in physical standards of each recruit, his height, weight and chest measurements, marks of his general physical condition (identification, vision, teeth, vaccination, inoculation or any other physical defects); educational and other qualifications of each recruit, trade category or grade and other remarks. These changes became necessary on an increasing demand of the Army for varieties and numbers of troops at the time. It continued to be used to the end of World War II and after.

I.A.F.K. 1169-A

ABSTRACT FROM RECRUITS' MONTHLY PROGRESS RETURN (IAFK-1169) AND
STATEMENT OF MEDICAL REJECTIONS

This form was introduced in 1931 for record of recruits to be kept properly. Originally it consisted of two tables. One giving, for each recruiting area, by arm of services, number of recruits rejected by Recruiting Officer and Assistant Recruiting Officer, number rejected by Medical Officer, total number passed by medical officer and placed in the waiting list by Recruiting Officer, and total number enrolled by the Recruiting Officer. The second table gave the main diseases (34) and Trachoma for which recruits were rejected by the Medical Officer from month to month.

In 1940, some changes were brought about with regard to this form, with a view to simplifying the work in connection with compilation of recruiting returns both in recruiting offices and at the Army Headquarters. Revisions were made and IAFK 1169-A was made a quarterly instead of a monthly return. After March, 1940, the second table of this return as it existed in the original edition was retained but the first table was reduced to only three entries regarding (i) total number sent to the Recruiting Medical Officer for examination, (ii) total rejections by Recruiting Medical Officer, and (iii) total number enrolled.

I.A.F. (MEDICAL)—1

INDEX CARD FOR OFFICERS/RAMC/IMS AND A.D. (CORPS)

AND

I.A.F. (MEDICAL)—1A (Continuation Card)

In March²⁸ 1939, DMS(I) introduced new edition of IAF (Medical)—1 and its new continuation card IAF (Medical)—1A for all officers who arrived in India after this notification or were granted commissions in India in the Royal Army Medical Corps, the Indian Medical Service and the Army Dental Corps. It was required to be brought into use before 1st January, 1940 for all officers of the Medical Services mentioned above. In the case of officers struck off the strength of commands after the date of this circular letter, new index cards were to be prepared immediately, with one copy to be kept in the respective offices of the DDMS, ADMS and OC unit and transferred immediately direct to the corresponding authority on the reporting of the officer in India. Cards of all other officers struck off the strength of the command, district or unit for all other reasons (would) be sent to the DMS, AHQ.

A card was prepared for each medical officer who might belong either to RAMC or IMS or Army Dental Corps. After giving his name and rank, the card maintained his record of service from Lieutenant onwards with dates, his knowledge of various languages, Honours and rewards won. It also contained information about his age, religion, martial status, next-of-kin and children. Against his qualifications were shown his degrees or diplomas and knowledge of special subjects with dates of acquirement. In the case of personnel belonging to the IMS, a record of promotion (with retention examination) was required to be kept. Then, a record of various courses (with dates) was also maintained.

The reverse side of this card and the continuation card were set apart for a record of movements, appointment, casualties, etc., of each officer. The six column headings were (1) District, independent brigade or force; (2) Station or unit; (3) appointment, casualties, etc.; (4) date from; (5) date to and authority. The idea in introducing continuation cards was to provide sufficient space in respect of movements and appointments of officers to be continuously recorded.

From these cards, the necessary particulars of early Military Medical and Dental Officer could be read at a glance. One copy of this card was supplied on transfer of a medical officer to his new unit immediately. In case of removal from the strength of a command, district or unit the card was sent to DMS, AHQ for record purposes. In respect of British troops, an additional bit of useful information prominently maintained on this card was the date of expiry of their service period (tour) in India.

It was being used throughout the period of World War II for every medical or dental officer.

²⁸ Circular letter No. Z-16966/4 (DMS1) issued to all Commands by Director of Medical Services in India.

I.A.F. (MEDICAL)—11

QUEEN ALEXANDRA'S IMPERIAL MILITARY NURSING SERVICE

(Return of members of QAIMNS in District/Brigade Area)

This form was required to be compiled at District/Brigade area and was to be sent to War Office London by the first mail after the end of every month. Every member of the Queen Alexandra's Imperial Military Nursing Service who served in an area during a part or whole of a month was required to be included in the return.

Numbers of principal matron, matrons, sisters and staff nurses were to be mentioned in the form. Further entries with regard to each member were regarding hospital, rank, name, duties and dates of arrival and departure, if any. If sick, the date from which placed on sick list was also to be mentioned.

I.A.F. (MEDICAL)—16

DISCHARGE SLIP

This slip was meant to be filled by the RAMC/IAMC/IMS Officer-in-Charge of a hospital giving dates of admission and discharge to and from the hospital of a patient; his disease while in hospital and the recommendation of the medical officer on the number of days a patient was to be awarded excused duty or light duty.

I.A.F. (MEDICAL)—18

NOTIFICATION OF CASUALTY

This form was meant to inform the Director General, Indian Medical Services in India, and others about a casualty, with its nature, suffered by an officer of the Indian Medical Service, or a Lady Nurse or a member of the Indian Medical Department. The Officer Commanding of a medical unit was required also to furnish along with the information mentioned above, name, number, rank, service or department of the sufferer and the type of his commission or appointment.

I.A.F. (MEDICAL)—19

DISCHARGE CERTIFICATE OF ASSISTANT SURGEONS AND SUB-ASSISTANT SURGEONS OF THE INDIAN MEDICAL DEPARTMENT

This form was meant to facilitate the absorption of Assistant and Sub-Assistant Surgeons of the Indian Medical Department in civil employ, on termination of satisfactory service in the military. On discharge, the following particulars of a person affected were required to be filled in before letting him out; rank, number, name, date and place of enlistment, date of discharge, authority for discharge, how and where

employed before discharge (to be filled in and signed by the officer under whom the discharged person worked), character and war service decorations, if any. This certificate was required to be countersigned by the Director General Indian Medical Services at that time.

I.A.F. (MEDICAL)—22

RECORD OF DETAINED PATIENT

This form was in use by detention wards of hospitals or larger Medical Inspection rooms from before World War II. A patient was required to be kept at these places for a maximum of 48 hours, during which time a record of his temperature, pulse, respiration, motion, diet, treatment and laboratory findings, if any, was kept on this form. Clinical notes on his condition and the manner of his final disposal were also entered. His name, rank, regimental number, unit, age, time and date of detaining and provisional diagnosis too were provided for. If a patient was admitted from these places to a hospital, this form was sent with him, as attached to his medical case sheet or clinical chart and was required to be filed after his discharge from the hospital. If he was not admitted to any hospital, it was filed by the medical officer concerned "for future reference".

No main structural changes were affected to the form during the period of World War II although minor changes were brought about off and on till 1944.

I.A.F.M. 1213—Weekly return of admissions etc., to be rendered by field ambulances, staging sections, casualty clearing stations and hospitals.

I.A.F.M. 1214—Weekly returns of admissions etc., to be rendered by staging sections, casualty clearing stations and hospitals.

I.A.F.M. 1215—Daily and weekly bed state to be rendered by field ambulances, staging sections, casualty clearing stations, convalescent depots and hospitals.

These three field service returns were introduced by the Medical Directorate in 1939. It was thought, that no standard forms existed at that time on which statistics of sick amongst troops engaged in "Frontier Operations" could be rendered and in order to place this matter on a satisfactory footing their introduction was considered desirable. Suitable draft amendments to Regulations for the Medical Services of the Army and War Equipment Tables were also accordingly carried out in 1939. These forms continued to serve as they were introduced in 1939, without amendments during the War.

I.A.F.M. 1213: Weekly admissions and evacuations separately for each category of troops concerned, were required to be given, unit by unit, in respect of gun shot wounds, 'not yet diagnosed fever', malaria, effects of heat, diarrhoea, dysentery, scabies and infectious diseases. Approximate strength figures, based on ration strength were also to be entered. In the totals columns, admissions for all causes, evacuations,

number discharged to duty and number died were also required to be shown.

The officer commanding, hospitals, Staging Sections or Casualty Clearing Stations were required to use this form for such cases as were admitted *direct* from the column, or Force engaged in active operations and who for some reason were not primarily admitted to field ambulances. They were asked to render it weekly to ADMS with copies to DMS(I) and DDMS. It was abolished on 20 October, 1943.

The information on the basis of this return has not been available for the purpose of this volume.

I.A.F.M. 1214: This form was on the lines of *I.A.F.M.* 1213 without number of admissions to the field ambulance. Actually the weekly information sought under admissions was in respect of direct admissions to Staging Sections or Casualty Clearing Stations or to hospitals or transfers from Field Ambulance and transfers from hospitals in respect of cerebrospinal fever, cholera, diarrhoea, dysentery, enteric group of fevers, other digestive diseases, typhus group of fevers, malaria, 'not yet diagnosed fevers', sandfly fever, pneumonia, other respiratory diseases, scabies, heat exhaustion, heat stroke, gun shot wounds, injuries in action, local injuries, minor septic diseases and all other causes.

Similarly evacuation figures, against the above mentioned diseases in respect of number of those evacuated to convalescent depots, and to other hospitals were required separately. Separate provisions for the weekly number of those discharged to duty and those who died were also required on this form.

Its rendition was on the same lines as *I.A.F.M.*-1213. Since most of the information on this form was in the nature of duplication of that on *I.A.F.M.*-1213, its discontinuation was agreed to by the Medical Directorate in their U. O. No. 6810/DMS5(e), dated 21-6-1943 to DMR & F.

I.A.F.M.—1235

RETURN OF SICK TROOPS IN CAMP, ON MANOEUVRES, OR TRANSIT FROM ONE STATION TO ANOTHER

This form consisted of two tables. Table I pertained to the sick in camp/on manoeuvres/in transit etc., of a unit or force. Information regarding the number placed on sick list and sent to the hospital against about 18 important individual diseases, for each of the various categories of troops was the requirement of this table. Whereas in Table II daily strength figure and number of officers, warrant officers, non-commissioned officers, men and followers on daily sick list were to be given. It also contained a daily deaths column, with particulars of name, age etc., and a provision for unusual prevalence of any disease or sanitation as might have been observed by the Medical Officer-in-Charge during any period.

This return was required to be submitted by the medical officer-in-charge of a unit or Force at the end of the period of camping, manoeuvres or transit of a unit.

When this period overlapped two months separate returns were required to be rendered for the portion of each month affected. It was submitted by the medical officer to ADMS with a copy direct each to the DMS(I) and to the DDMS Command.

Its abolition was agreed to by the DMS(I) on December 16, 1943 when a big scarcity of paper was being felt in the country and unessential requirements were being cut to the minimum.

I.A.F.M.—1242A

MEDICAL HISTORY SHEET OF KING GEORGE'S ROYAL INDIAN MILITARY SCHOOL

This form was a record of a recruit before his despatch to the Training Centre/Unit. Particulars of his schools number, address, date of birth, etc., of a recruit with the general remarks on his conduct and progress were given in it. It also contained detailed particulars of his height, weight, chest, teeth, eye sight, tonsils, hearing, heart, lungs, other organs and previous history along with eye condition, vaccination and inoculation details done to him were given. A special page was allotted to his record of illness requiring admission to hospital. It continued to be used by all recruiting centres during the war.

I.A.F.M.—1265

MEDICAL BOARD FOR THE REASSESSMENT OF DISABILITY

This confidential form was introduced in February, 1927. It was in the nature of proceedings of medical boards sitting from time to time to assess the disability (percentage) of recruits brought before it. It contained the "opinions" of the medical board.

One copy of the form on completion was to be retained in the office of the hospital where the board was held. Two copies were to be sent by the President of the board to the officer commanding the pensioner's unit or to the head of the department who was to retain one copy and send the other to the Controller of Military Accounts.

This form was also to be used in cases where an individual, for whom a disability pension had been sanctioned permanently, who claimed that a substantial increase had occurred in the degree of his disability as the result of its original cause since the grant of the permanent pension.

Towards the end of 1937, the instructions on the reverse of this form were revised and their observance was circularised to all concerned through an Indian Army Order No. 52 of 1938.

Further important changes were brought about in this form during 1946-47 by the Ministry of Defence in consultation with ADMS (Pensions).

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